Missouri Botanical Garden

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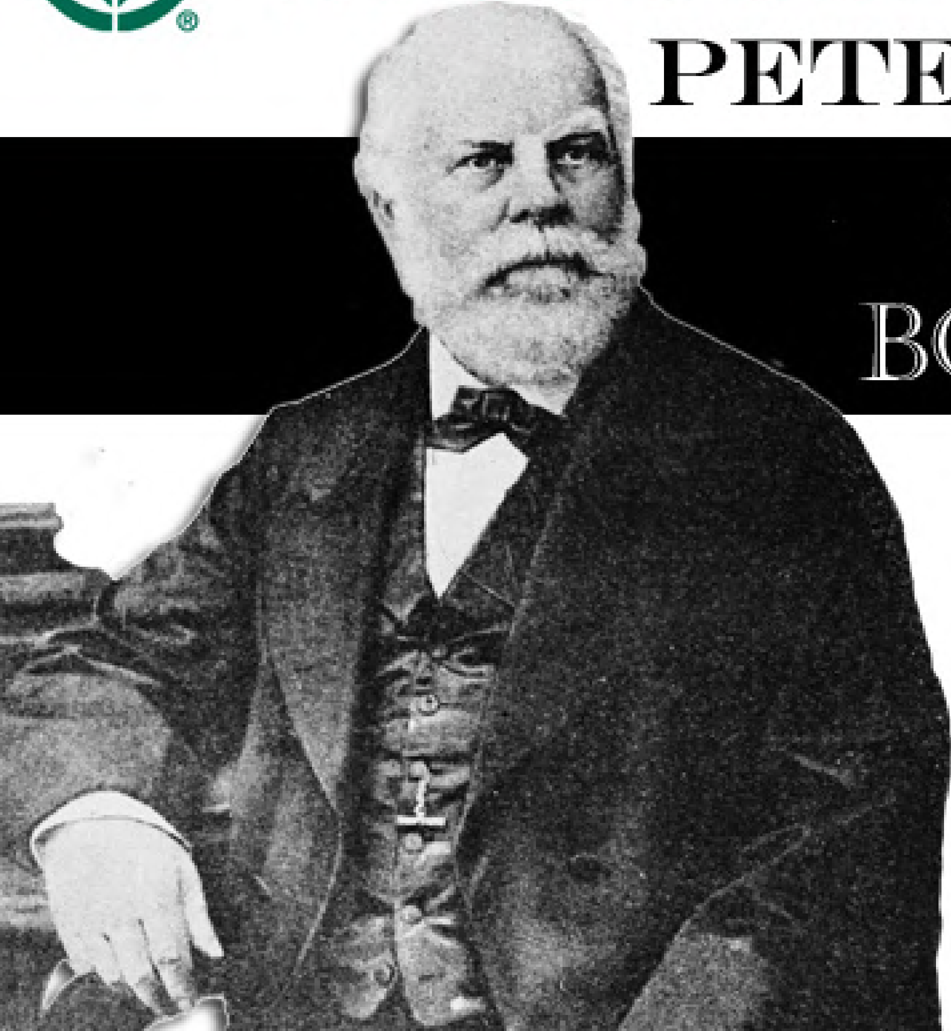

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O. Tucsonensis

MEN'S FALL AND WINTER SUITS.

Business Suits and Working Suits.

Youths' and Boys' Dress and School Suits, Children's Suits,
From Three Years Old Up.

LARGE VARIETY OF LIGHT SPRING ULSTERS. SATISFACTION GUARANTEED IN EVERY PARTICULAR OR MONEY RETURNED.

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Dr. Christopher Johnston.

Dr. T. A. Ashby,
Dr. C. O'Donovan,
Dr. Frank Donaldson

1258-93

O. Tucsonensis

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2767

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Manufacturer of and Dealer in

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1-u

TO THE MEDICAL PROFESSION.

BARK HONDURAS.

FROEHLING'S FLUID EXTRACT of BARK HONDURAS

Since its introduction in 1878, has won for itself a reputation for efficacy such a but few remedies possess.

We are in possession of letters from a number of eminent physicians, stating that they have used it with perfect success in secondary and tertiary forms of Syphilis, Scrofula and various forms of skin diseases and as a general Blood Purifier.

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HENRY FROEHLING.

Practical Chemist and Microscopist,

No. 59 North Charles Street. BALTIMORE, MD.

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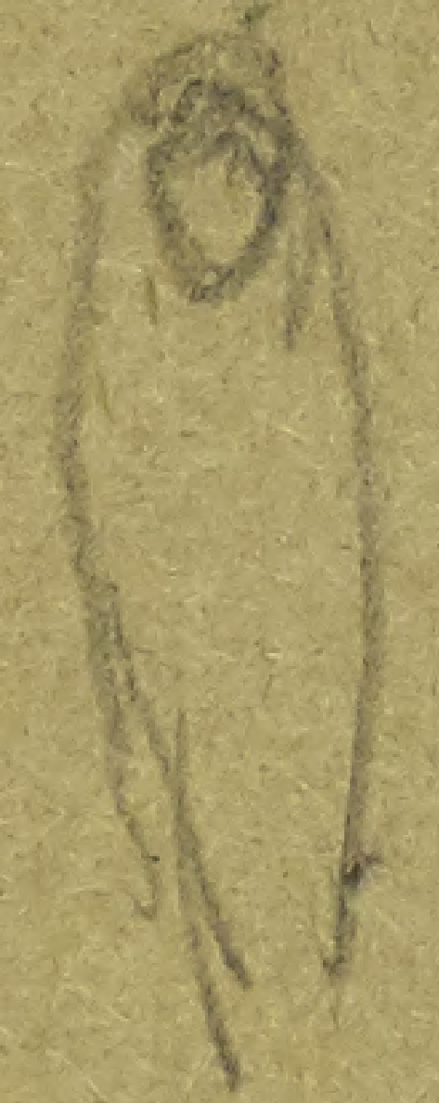
Opunt. Tucsonensis

tuber. long 9''' | narrow ~~1/2~~ 1/4''

areola. narrow



fruit small, pulvilli deeply umbilicate / dry

leaves 3''' porrected or deflexed
point incurved

lower bark rough, without spines

Tucson Sept 1880

2768

GARDEN
GEORGE ENGELMANN PAPERS

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O. M. Müller Missouriensis

May 1881

20–25 areol. in ovary

ovary tuberculated, not spiny.

leaflets 1½ l. long ? ?

fl. yellowish 1½"–2"

outer sepals orbicular ! about 8

flower inner sepals 5 ?

(7–)
abt 8 yellow spatulate petals
(no brown seen ?)

8 capitate yellowish pale stigma

fertile branch 9''' diam

tube ovary 10–12''' long, linear, oblong

Areolae large, terminal with 12–15 short long 4''' brown spines with paler sheaths.

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Alnus,

[illegible] 1846

valley near Camp 55 M

Raton Mts, Cañon 26/9

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

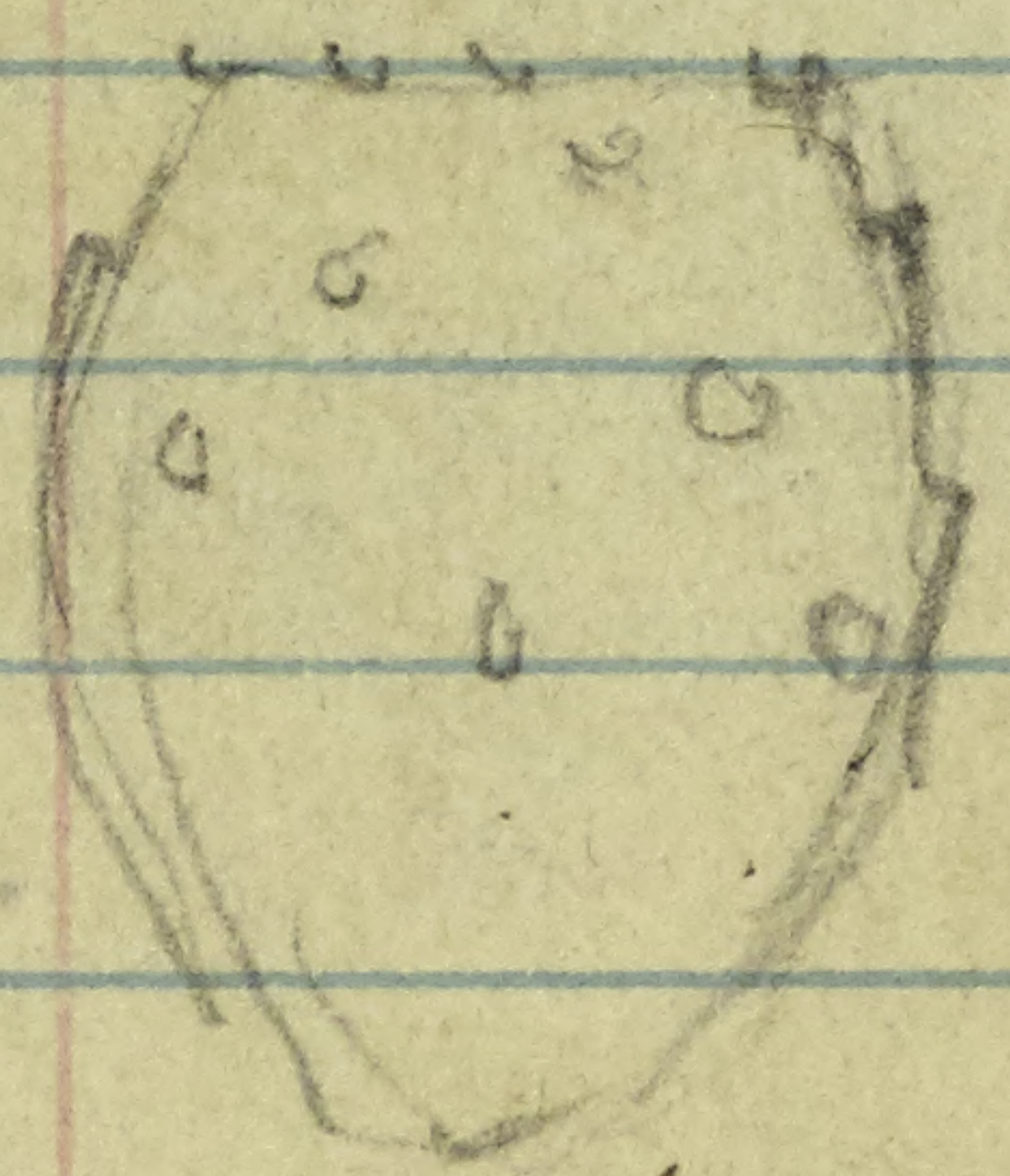
2769

Sept 24 1880

Cylindropuntia Tucsonensis   Hills just north of Tucson
with Cer. gigant, Mam. Grahami, Opunt. leptocaulis &c. Common
near the Mexican houses at base of hill -
fruit small, oval, 10 lines long with few (20?) areolae, now
yet green and fleshy, but apparently unripe; umbilic flat,
seeds irregular, angular, with broad commissure.

Cylindropuntia

north of
Tucson Sept 24 1880



about 20 areolae on green
fruit, now (unripe)
fleshy, umbilicus flattish
seeds irregular, angular, with a broad
commissure

2770

[7—037.]

Tenth Census
of the
United States.

Wood specimens
of

~~1 Abies magnifica~~

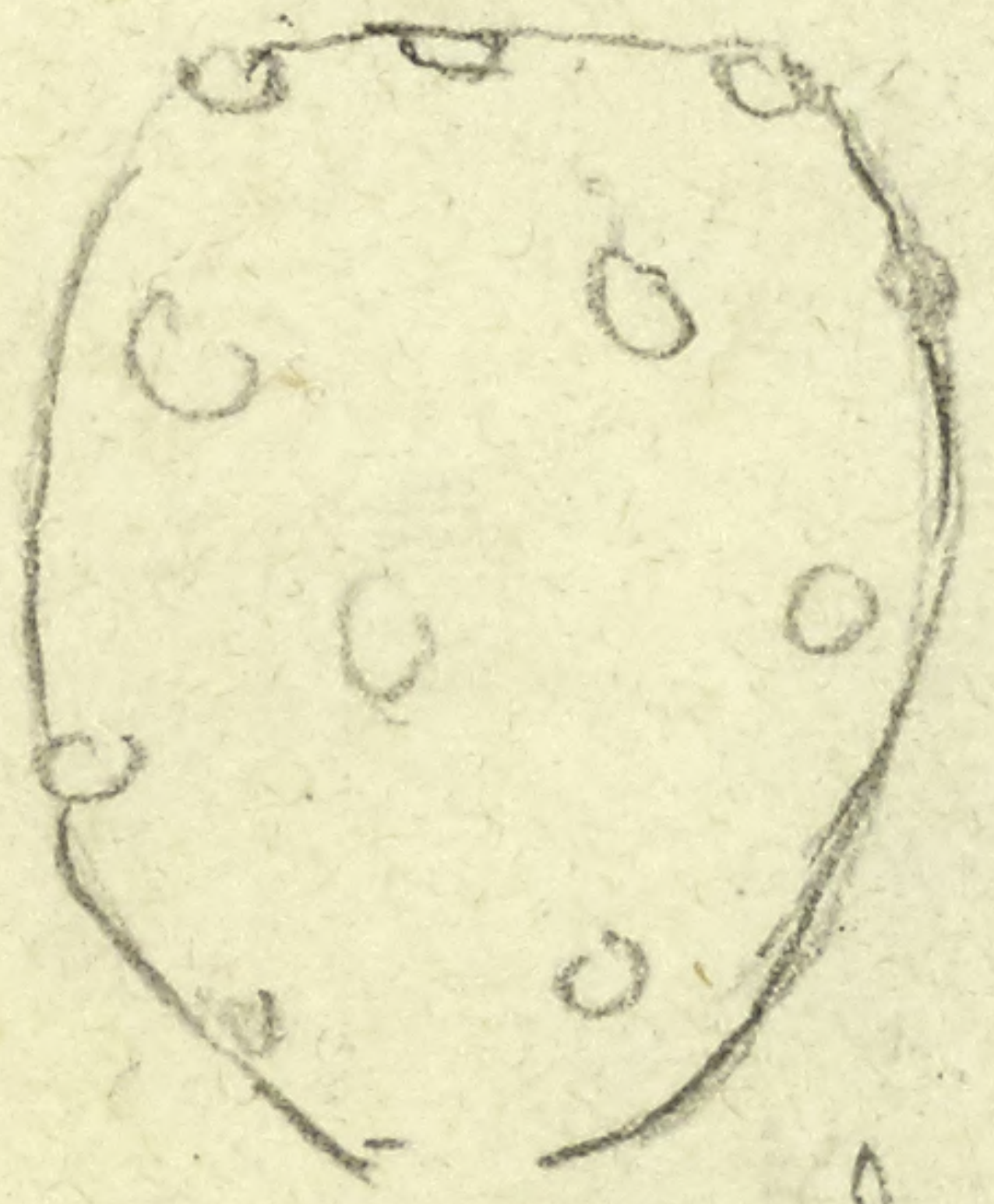
1 Cupressus near Clear Lake.

[illegible] 2771

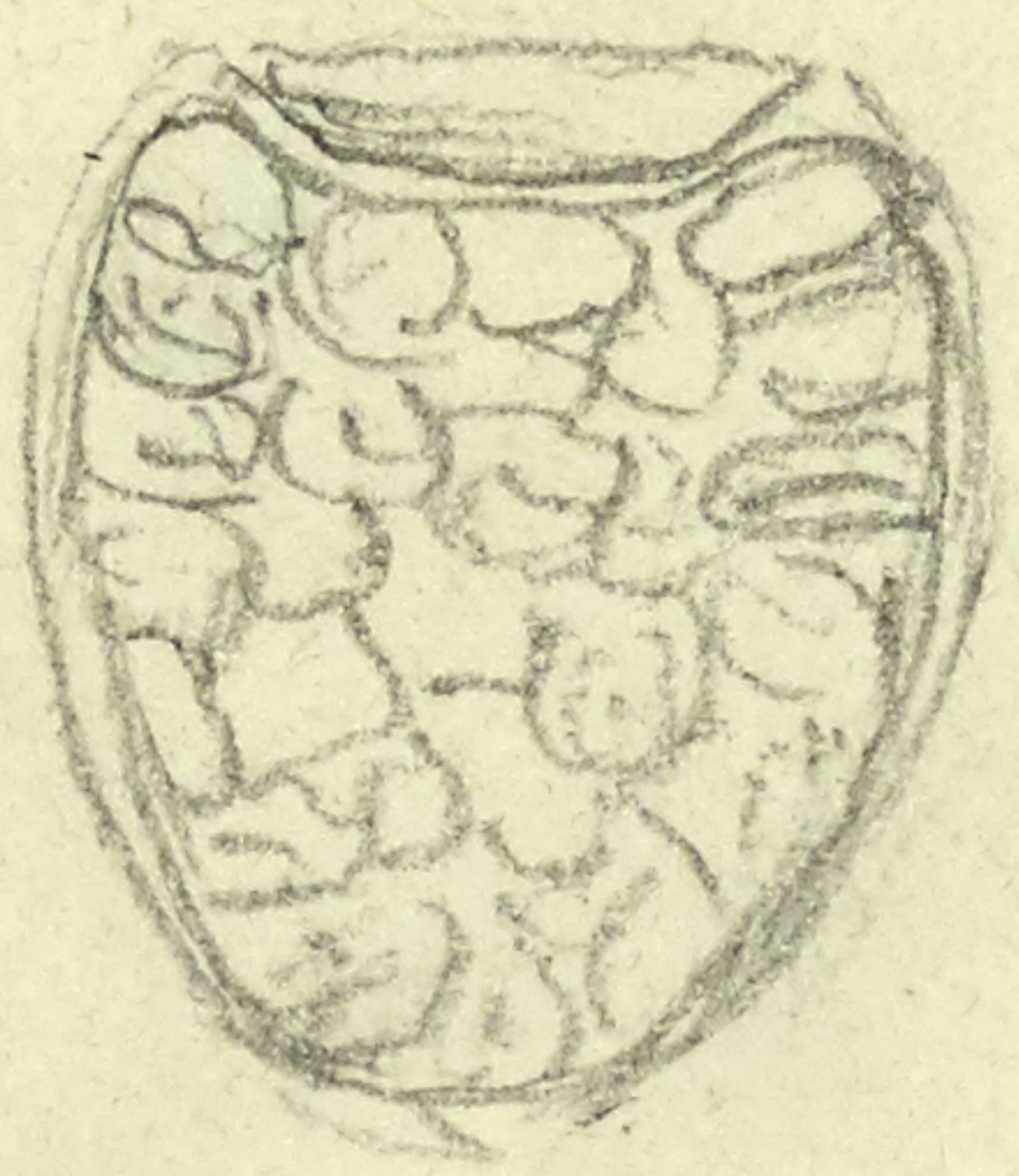
Mo 27 Mittags [illegible] auf die Piny
[illegible] [illegible] [illegible] Centiped!
[illegible] [illegible] [illegible]
Di 28 – Mesa [illegible] Opuntia Engl
[illegible] Nacht

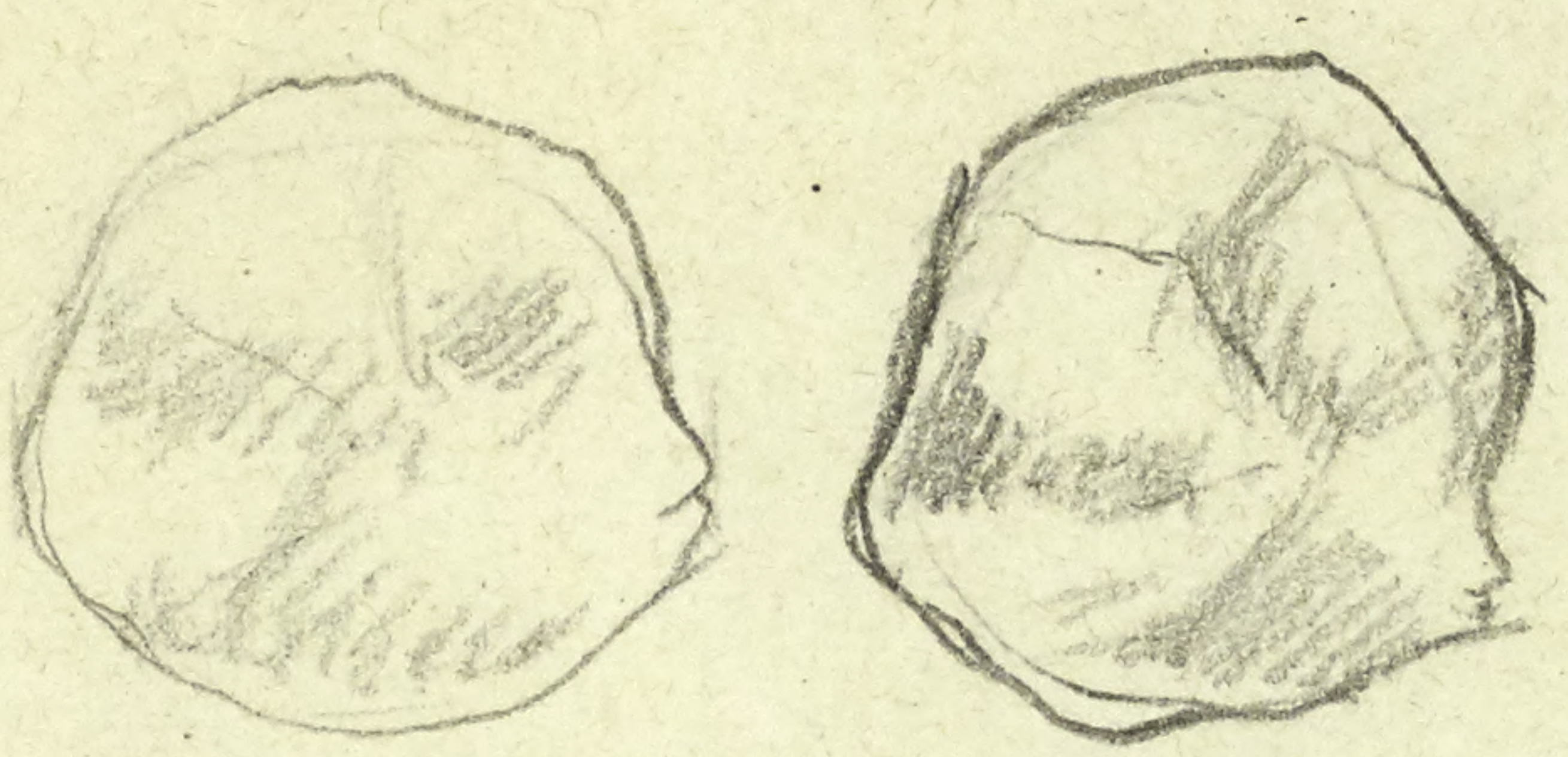
Opuntia Tucsonensis March 29 1881

Tucson Sept 1880 G.E



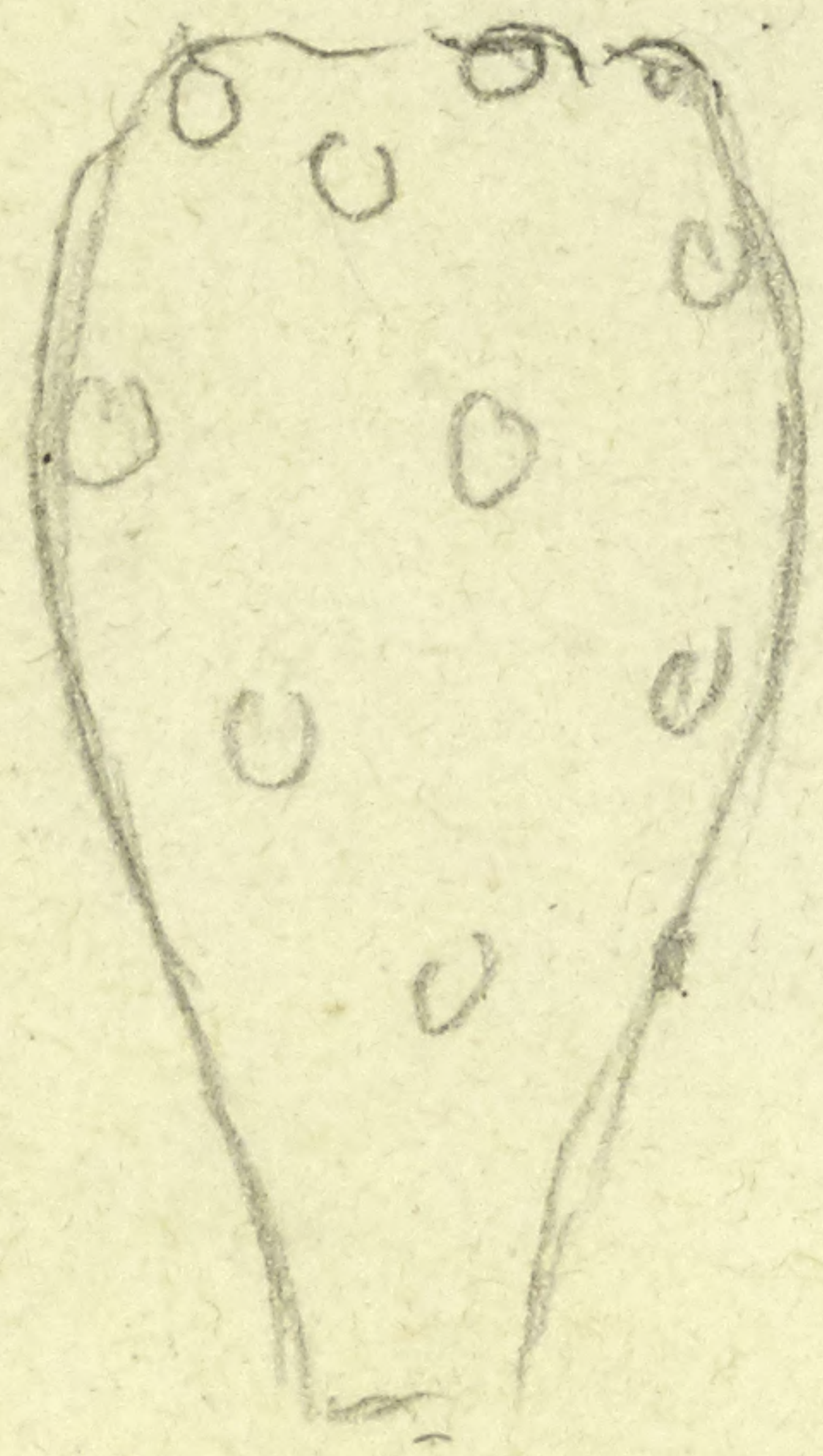
fruit dryish
about 20 areolae



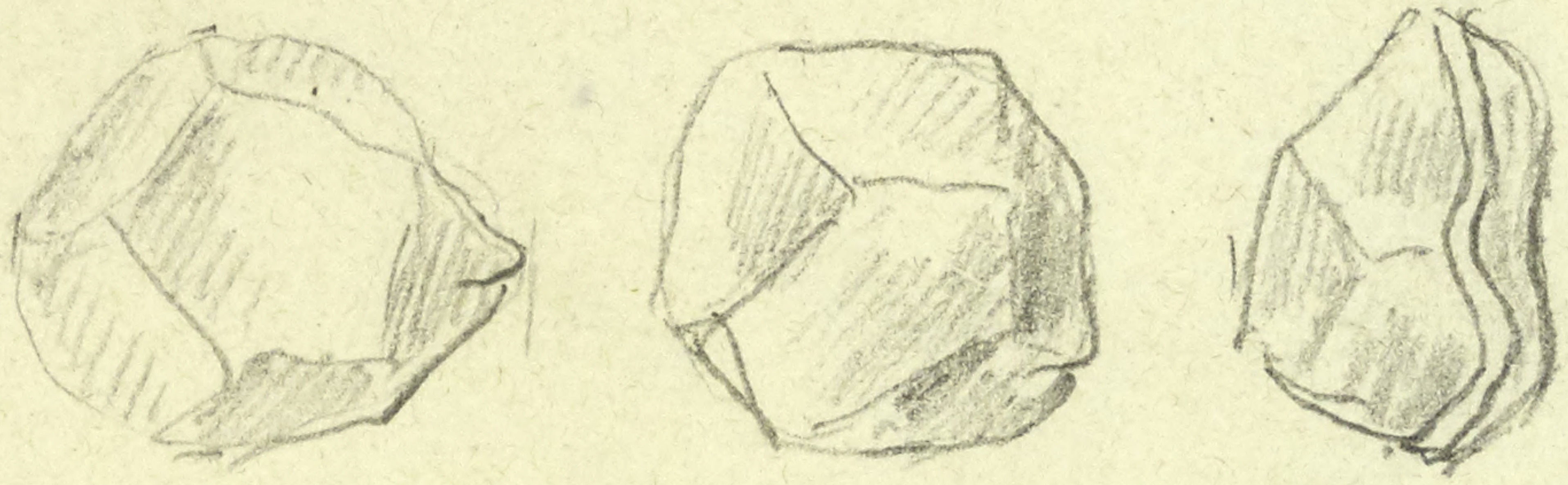


seeds irregular, thick, with broad rather prominent commissure; 2-2½ lines in diameter

& Parry, Tucson Jan 1881



about 20 areol.



commissure much narrower

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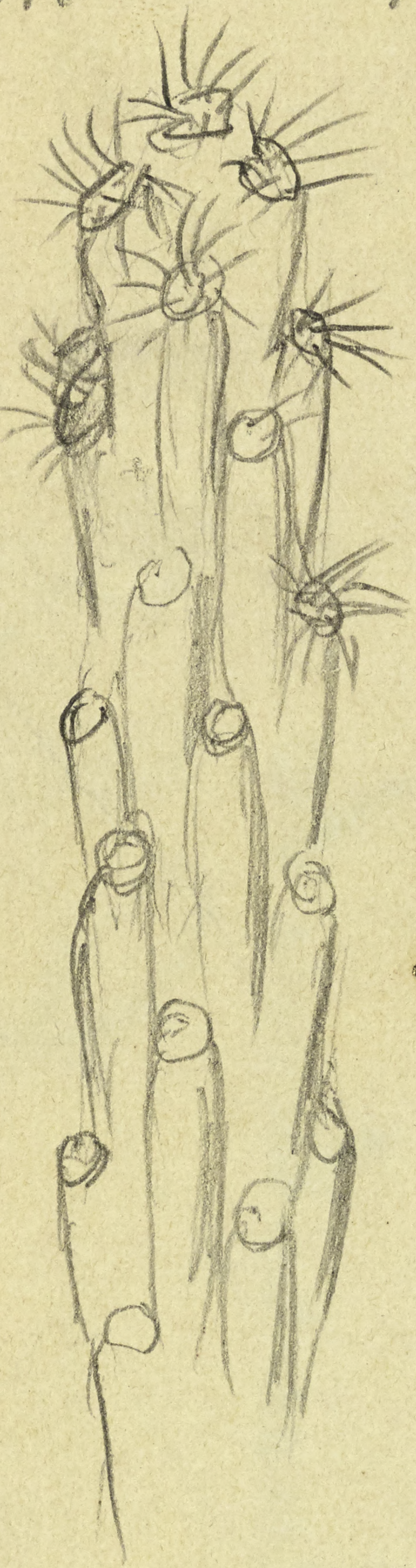
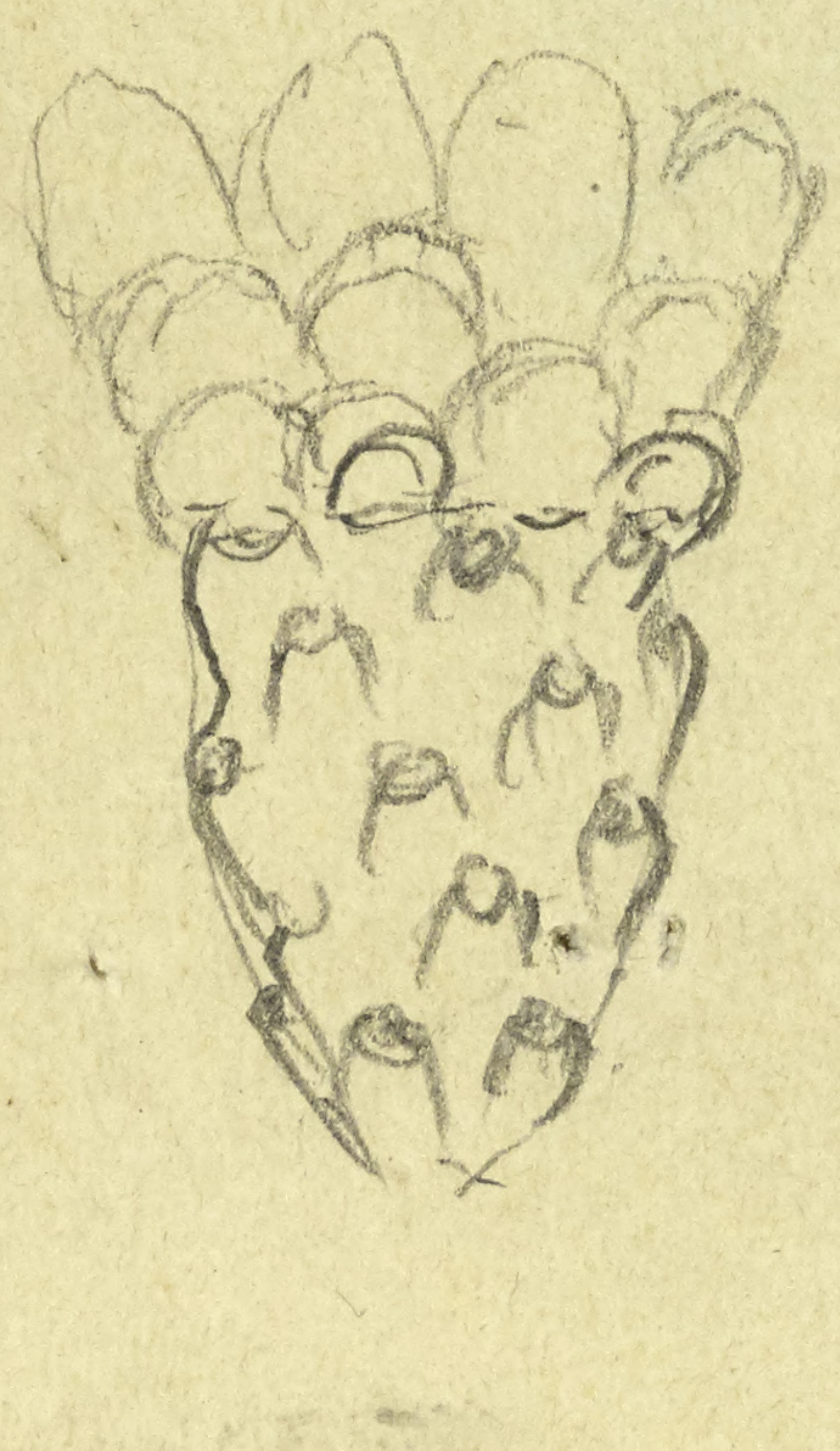
2772

Leitch & Corliss
DRUGGISTS
South-west Corner Fifth
and Market Streets

Op. Tucsonensis
Benson, Arizo—
F. A. Miller May 1881





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2773

~~Please return to G. E.~~

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Dr C C Parry Jan 1881

No 3. Opuntia ——— ?

3 to 8 ft high irregularly branched main trunk 2–3 inches diameter 1–2 ft long. lower branches 8–18 inches long evenly cylindric. spines quite persistant. tubercles on older branches flattened. prominent 6-7'' long in young shoots. dull purple or greenish? of a drooping habit; fruit terminal bright yellow^{2}? when mature.

you must have seen this on the RR near Tucson or beyond the Gila

the seeds are characteristic.

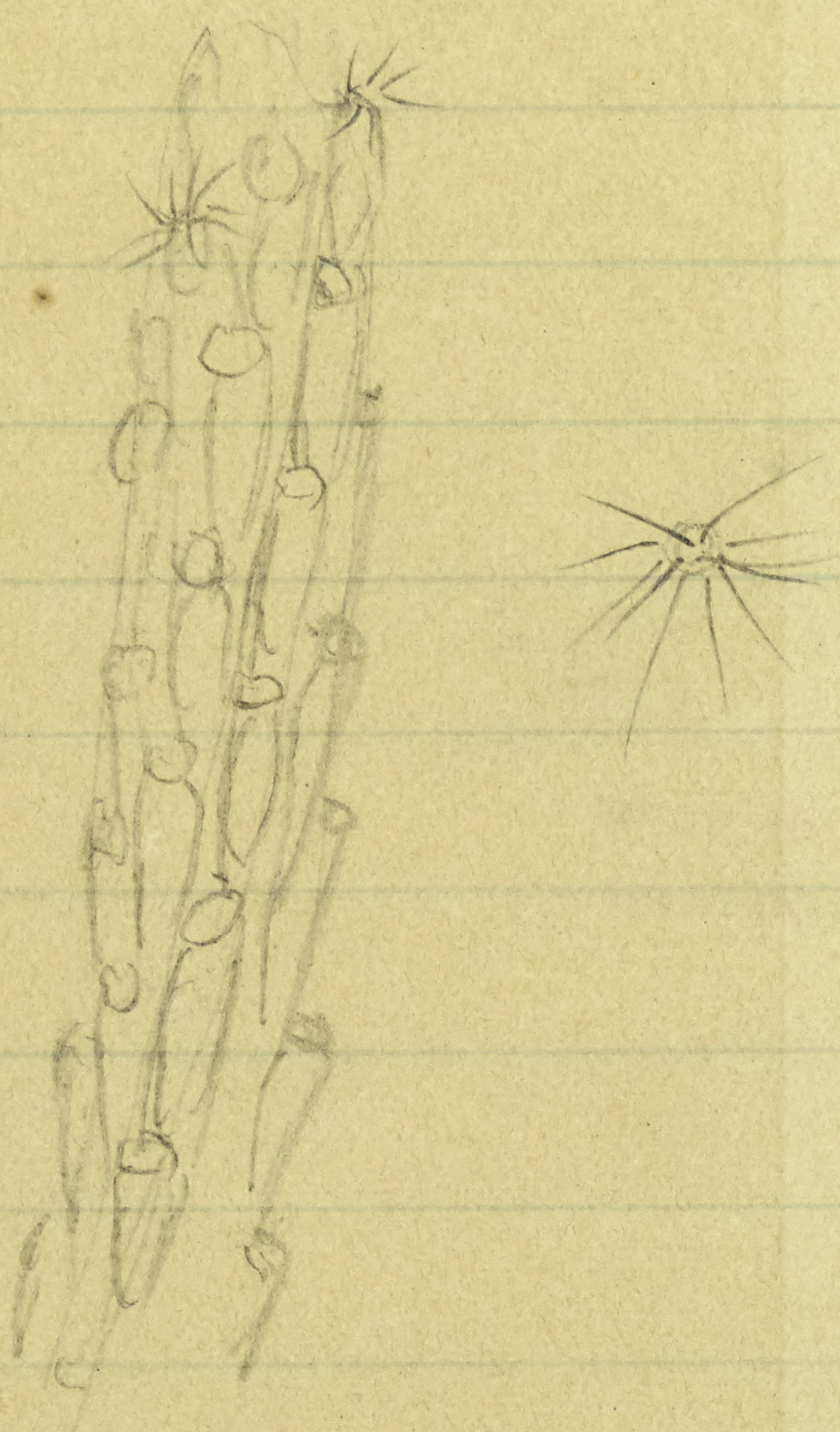
through, spineless, irregularly much-branched

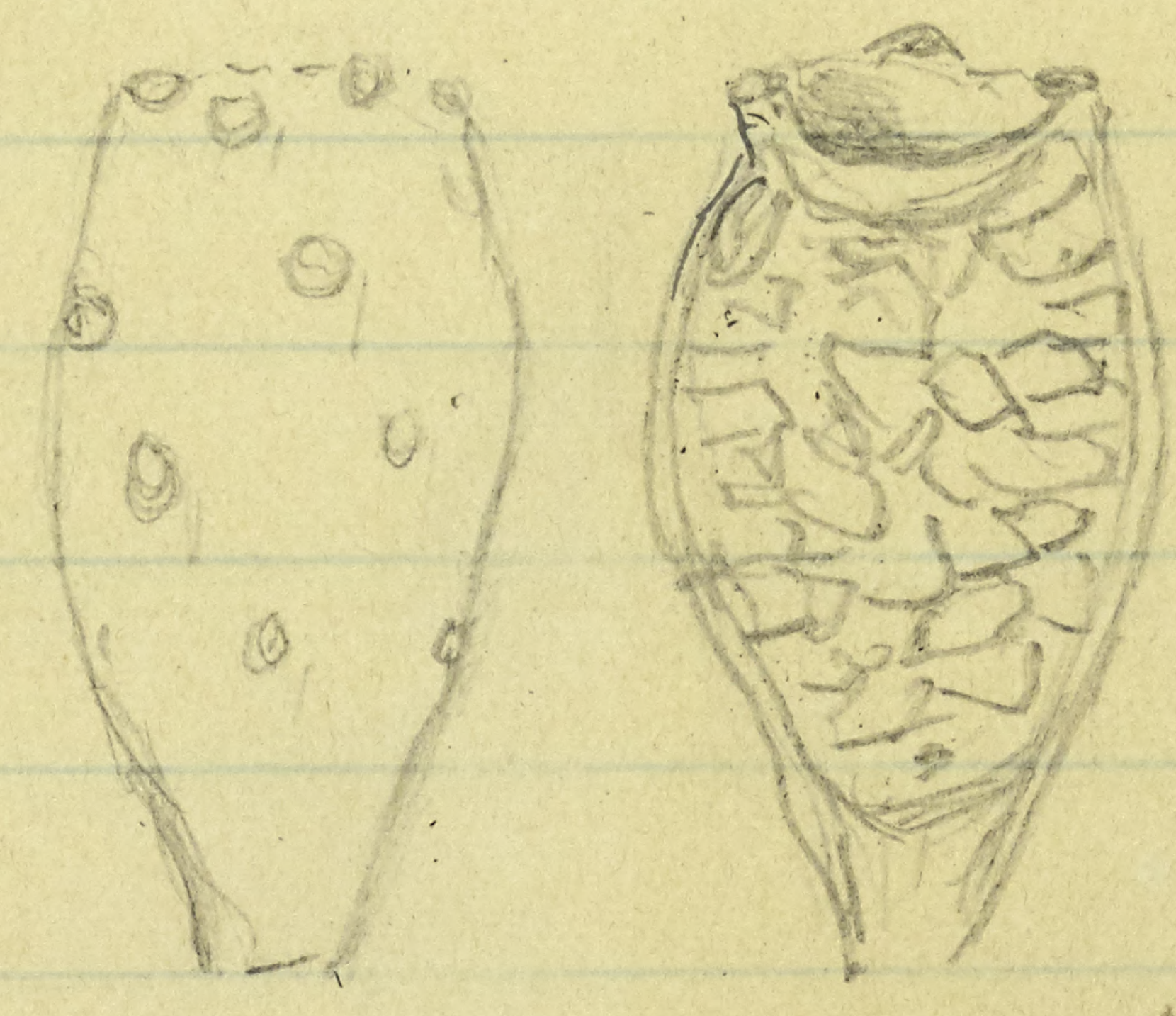
2774

No 3 Dr Parry

= Tursonensis

Opuntia brachyacantha





fruit yellowish, nearly dry, areolae
about 20 orbicular, not bristly

tree like
Trunk 2–3 inches through, spineless, irregularly much-branched,
lower branches elongated (8–18" long) terminal ones 4–6 in long,
½ in diam ~; (in winter purple) tubercles 6–7 lines long linear, prominent,
soon flattened out and disappearing on the older ~~branches~~
in 4/7 order
Areolae terminal, very short gray tomentose; scarcely any
trace of very short bristles on upper edge.
Spines 6–12 on young 15–20 on older joints; red brown
acicular with a close and soon disappearing vagina; the longest
ones rarely more than ½ inch long, usually 3–5 l. long.
— Older bark smooth, brown, ~~with~~ marked with large
prominent areolae, from which the spines wear off —
oldest bark dark gray, rough

fruit in my specimen green, turning yellowish, clavate,
apparently getting dry (consistency of fruit of Op. arborescens?)
seeds numerous, (angular and very irregular) a little over
2 lines wide.

2775

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"D." Dr Coues

Opuntia Whipplei Engl & Bigel

~~Cereus~~ ______ ?

The commonest & most widely distributed Cactus about Fort Whipple. Found everywhere on open, dry, flat, & grassy or barren plains: preferring those sparsely grassed, & inclining to be stony. — In patches several yards in diameter; irregular & straggling in shape: two to four or five feet in height. — Young plants form closely set bushes, more or less spherical in shape; a foot or so high and in diameter; fleshy & green nearly or quite to the roots; appearing from a distance almost white from the abundance & close aggregation of the white spines. The older the plant the more irregular, ragged & uncouth the aspect, both of the individual & the whole patch. The main stems have then become quite hard and ligneous, the bark resembling that of some species of Juniperus, in its peculiar ragged & fibrous character. The general character of the plant is then very straggling: the lower portions are nearly bare, & dark brown; and only the tops & the newer shoots retain their softness & greenness this color, as in young plants veiled by the white spines. Very often more or less of the young shoots, or perhaps the greater part of the fleshy portions of the plant are of a dull reddish purple color.

In general habit the plant is "erect, arborescent." A shoot, near its apex gives off an indefinite number (2 or 3 to a dozen other shoots; which may grow off at a

2776

ght angle; or what is more frequent, incline forwards, in a loosely-set bunch, around the xillary shoot, — the prolongation of the main tem. This axillary shoot continues forward and soon gives off another congeries of lateral ones: Each one of which may in turn become a parent stem.

Each stem, or shoot, as long as it remains in the green "fleshy" condition is composed f a number of small closely-compacted oblong lobes, [tubercles] the direction of each series of which is ascending spirally round the ~~stem~~ periphery of the Stem. Each lobe bears upon the central or (more frequently) the anterior portion, its spiniferous pulvillus.

The spines are very thickly set; averaging from 2 to 5 or 6 on a pulvillus. Those growing upon the pulvilli nearest the base of the hoot are very small & few in number; but nly a ~~f~~ very few pulvilli want them altogether. They increase in size towards the apices of the shoots, where they are also most numerous. They there average 1/2 – 3/4 of an inch in length; are very slender & pure white in their whole continuity

The fruit is borne upon the apices usually, — on the lateral surfaces more rarely f the newer shoots. Sometimes it is single; but much more frequently in a cluster of 3–5–6; when the shoot ~~as~~ usually curves pendantly downwards with their weight. When unripe they are deep green, like the Stems themselves; they gradually lighten, ~~to~~ becoming yellow; pass

2777

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GARDEN

ough various shades of yellow to a bright chrome;
finally become of a light dull scarlet red.
hey are broadly, obtusely pyriform in shape
pically deeply umbilicated: their surface
omposed of a number of large, more or less
griform, out=standing lobes. – [tuberculated]

When fresh this Cactus possesses
a very peculiar & slightly nauseating odour.

Dr E Coues

2778

"D."

Field notes on

Cereus —?

Elliott Coues,

December 5 1864

Dr. E. COUES U.S.A. Washington D.C.
JAN 28 1880

Dr C C Parry Jan 1881

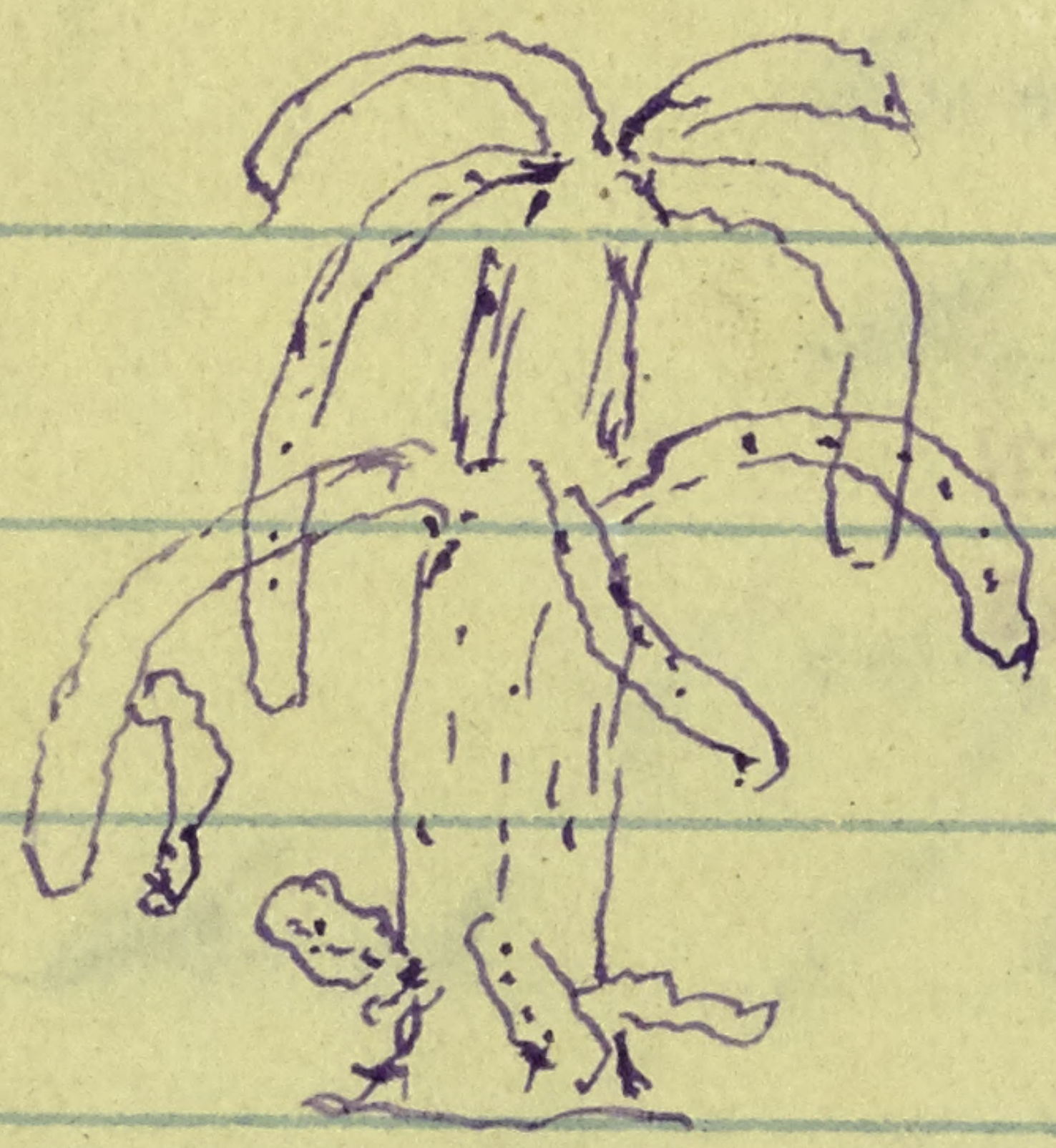
Whipplei

No 2 Opuntia (lurida)? n sp ?

Trunk short or occasionally small tree like 1–3 ft. sending off divaricate drooping branches 1 foot long generally in 3–5 – tubercles prominent stems purplish green. fruit terminal bright yellow seed orbicular smooth

See specimen

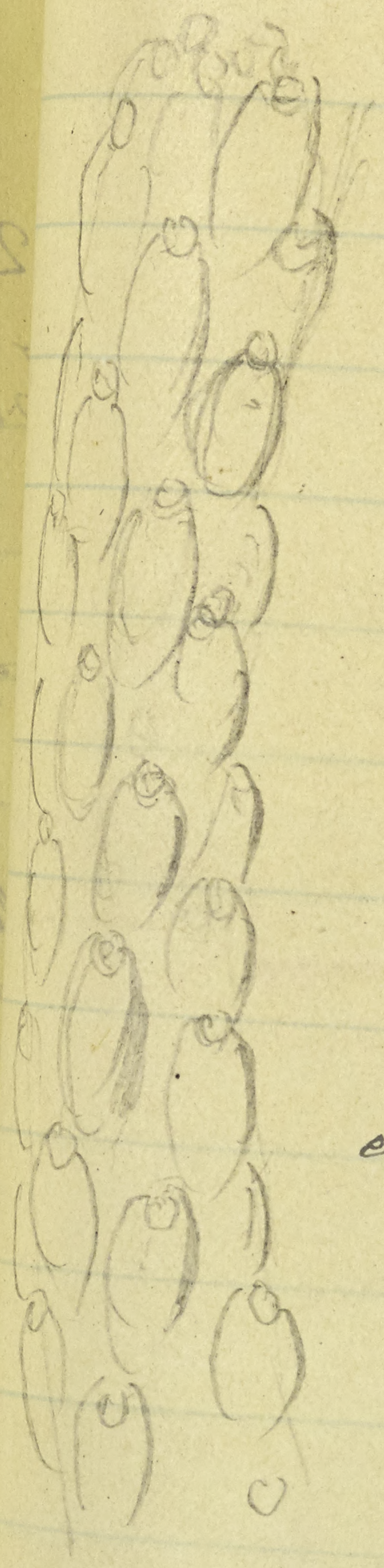
See specimens



Trunk too thick should be even cylindr

Hab. gravelly hills near Benson. Jany 21st/81
I confounded this in my specimens with No 3 which is distinctly tree form. seed very different. must examine this again & make diagnosis better)
Do you recognize it?

2779 Jan 1881 Dr C C Parry



elongat

tercles short

terminal bri
the stouter ones
it or ~~oft~~ bro

Fruit oval, ro

orbicular se

what prominen

Seeds rather reg

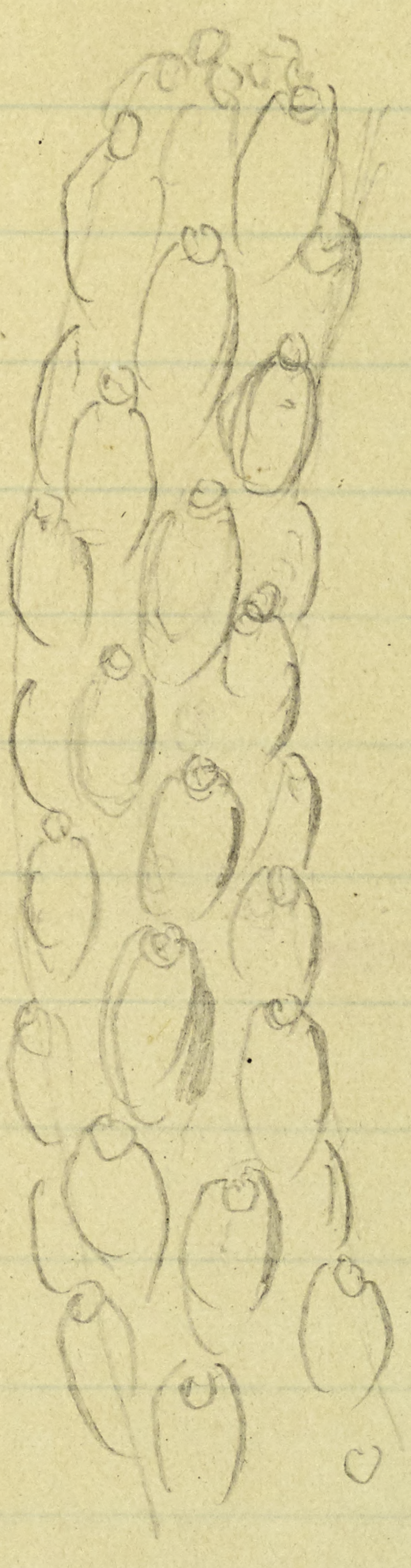
a narrow, wid

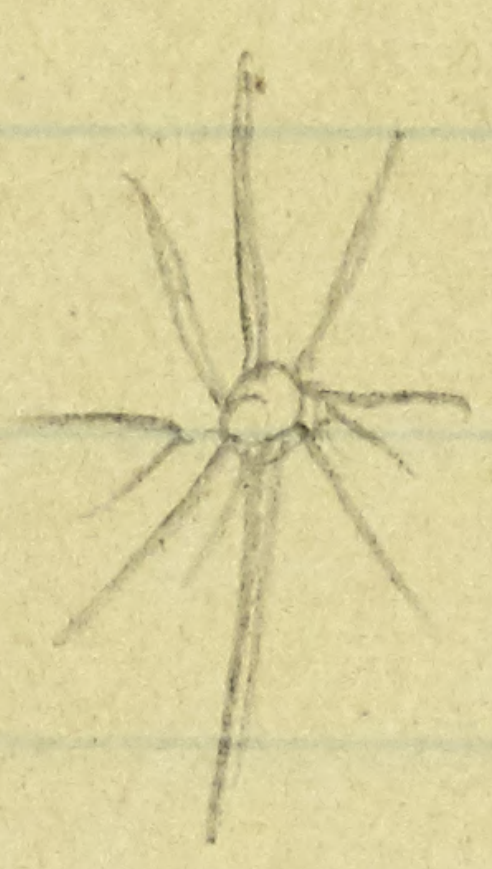
O. Whipplei   Whipplei ?

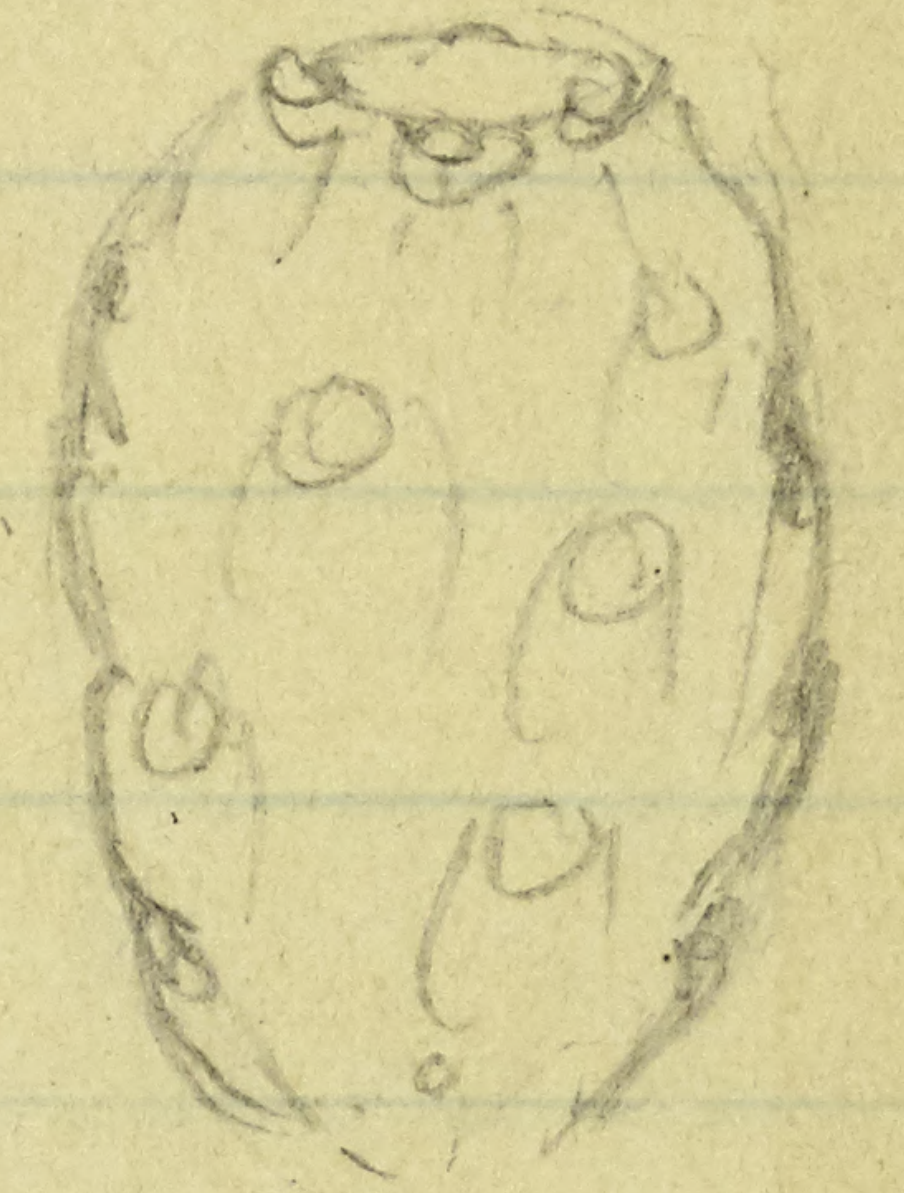
[illegible]

Opuntia brachytela = echinophloea

Dr Parry Jan 1881







Trunk short and ~~thick~~ stout, sometimes tree-like, 1–3 feet high, with divaricate elongated drooping (only in winter?) rather simple branches,

branches 8–9 lines diam, livid purplish (only in winter?) ~~ot~~.

tubercles short (6''' long) remarkably prominent, ~~oval~~ with terminal bristle-less areola, bearing 7–10 short whitish or ~~oft~~ the stouter ones brownish spines, 3–5 l. long, well sheathed.

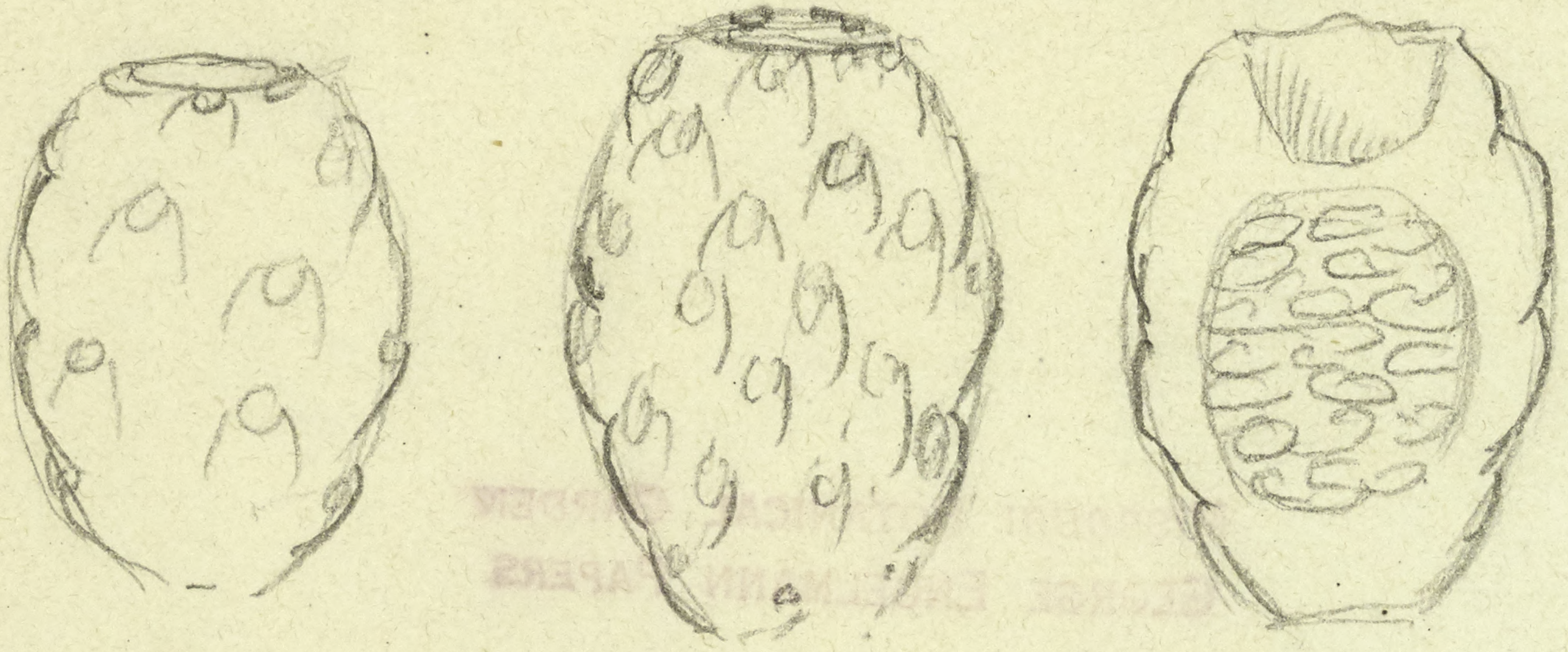
Fruit oval, somewhat fleshy, bright yellow (= arborescens) with orbicular seeds – areolae of fruit 25–30 on somewhat prominent tubercles

Seeds rather regular, orbicular 4–5 mm diam, half as thick with a narrow, wider or very wide (1/3 the thickness of the seed) commissure.

2780

Opuntia Whipplei (echinocarpa) G. E. Arizona Sept 1880

March 29 1881

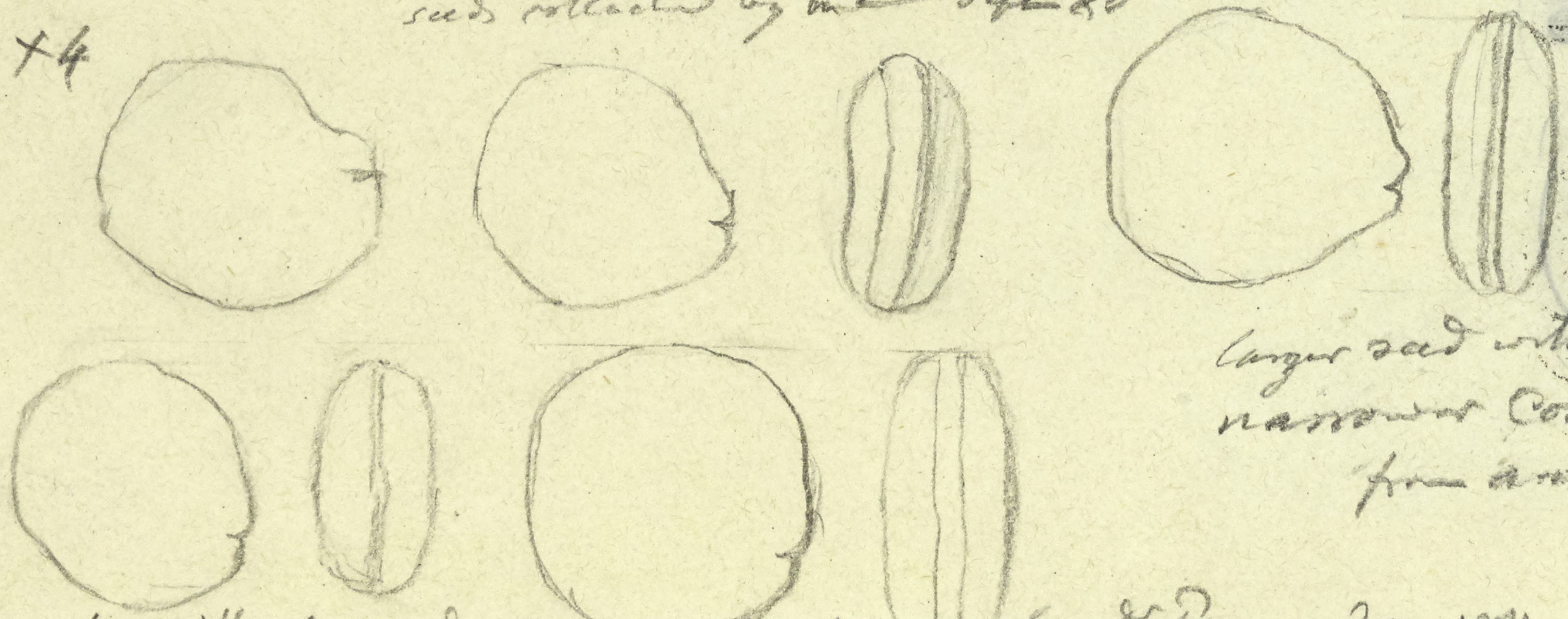


Parry's and my fruits are all alike

20 — 70 areol

seeds collected by me Sept 80

×4



larger seed with narrower Commissure from another capsule

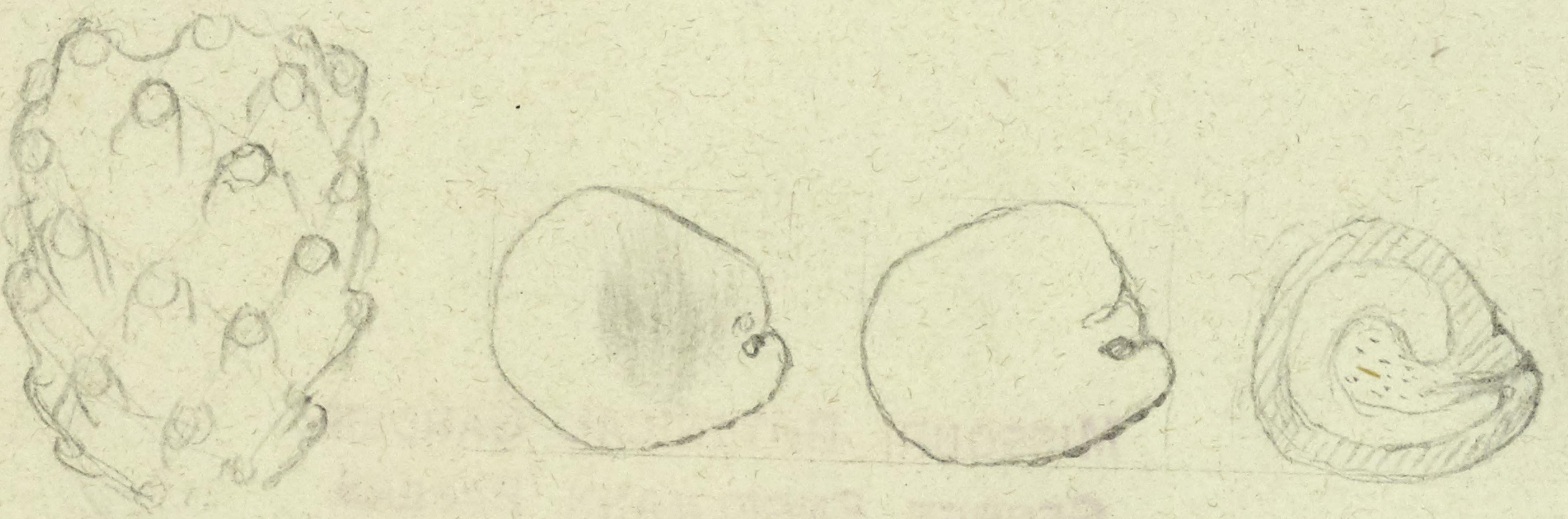
two different seeds sent by Dr Parry, Jan 1881

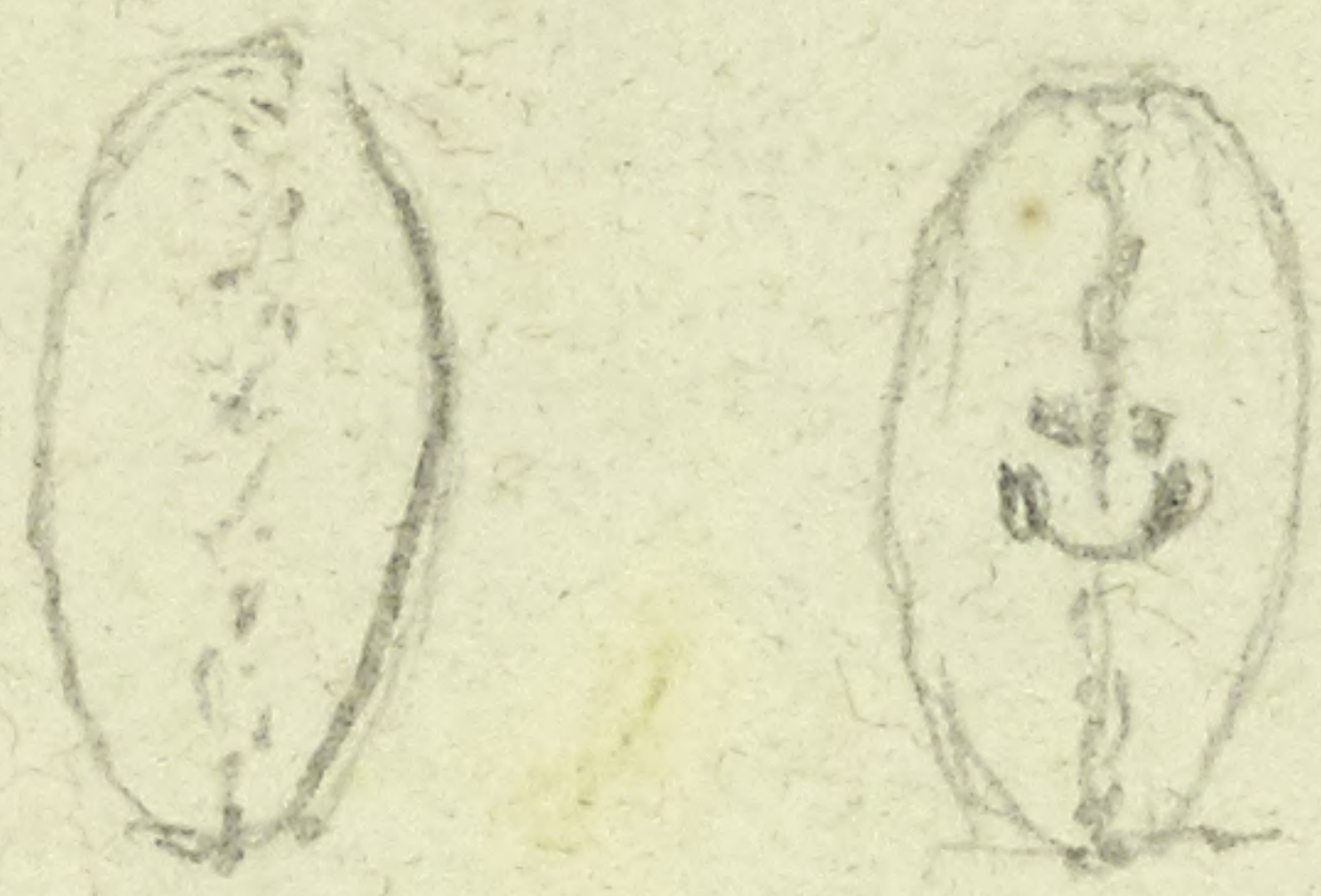
2781

Leitch & Corliss
DRUGGISTS
South-west Corner Fifth and Market Streets

Opuntia Whipplei ? march 28 1876

old specimen (1853-55 ?) no label





raphe indistinct linear
or indicated by tubercles

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MISSOURI BOTANICAL GARDEN

2782

Alex. Leitch,
APOTHECARY & CHEMIST,
Cor. 4th & Olive Sts., St. Louis.

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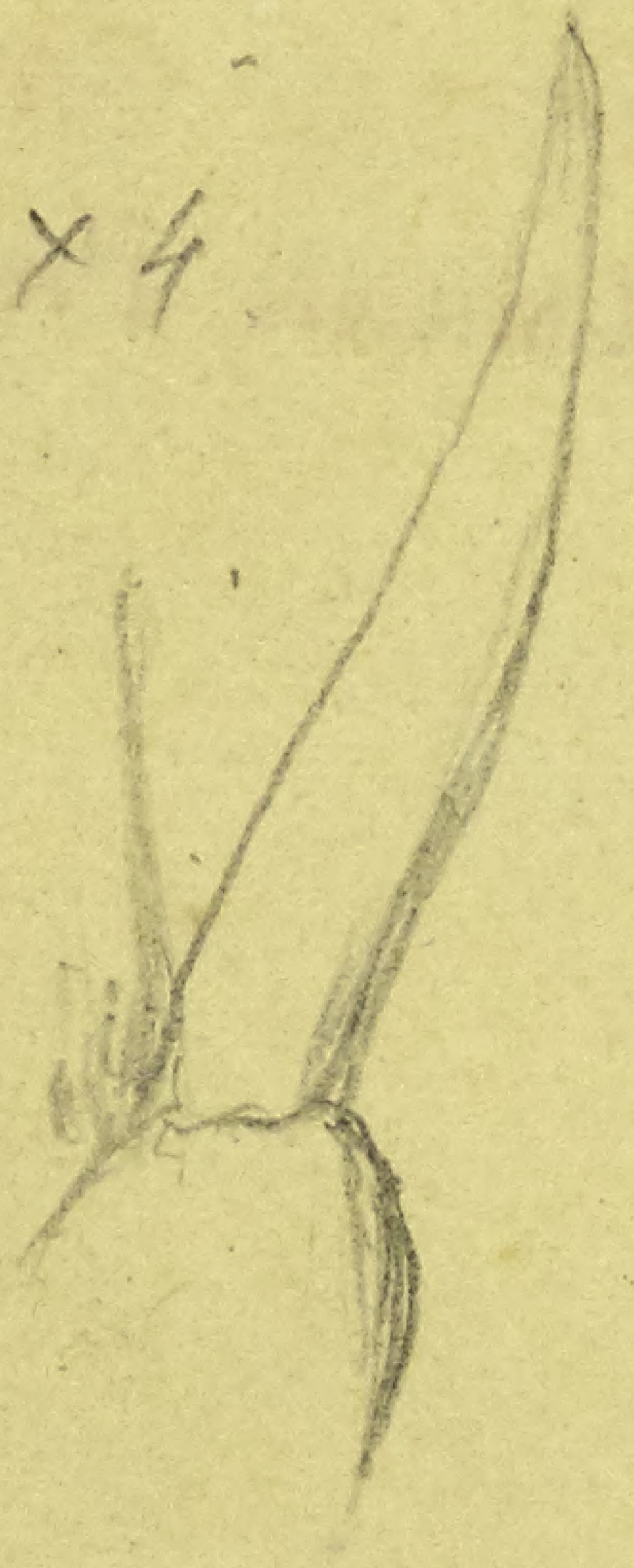
Aug 1877



Op. Whipplei

St George, Utah

Dr Palmer 1877

2783

Opuntia Whipplei (dense wood)

very much branched
birds build nests
in it (for protection

South east of St George towards the
Colorado oft about 3 feet high, rarely
more + usually 2 feet

Dr Palmer May 27 1877

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Missouri

2784

SIR: Being engaged in preparing a memoir upon the "Burial Customs of the Indians of North America, both ancient and modern, and the disposal of their dead," I beg leave to request your kind coöperation to enable me to present as exhaustive an exposition of the subject as possible, and to this end earnestly invite your attention to the following points in regard to which information is desired:

1st. Name of the tribe.
2d. Locality.
3d. Manner of burial, ancient and modern.
4th. Funeral ceremonies.
5th. Mourning observances, if any.

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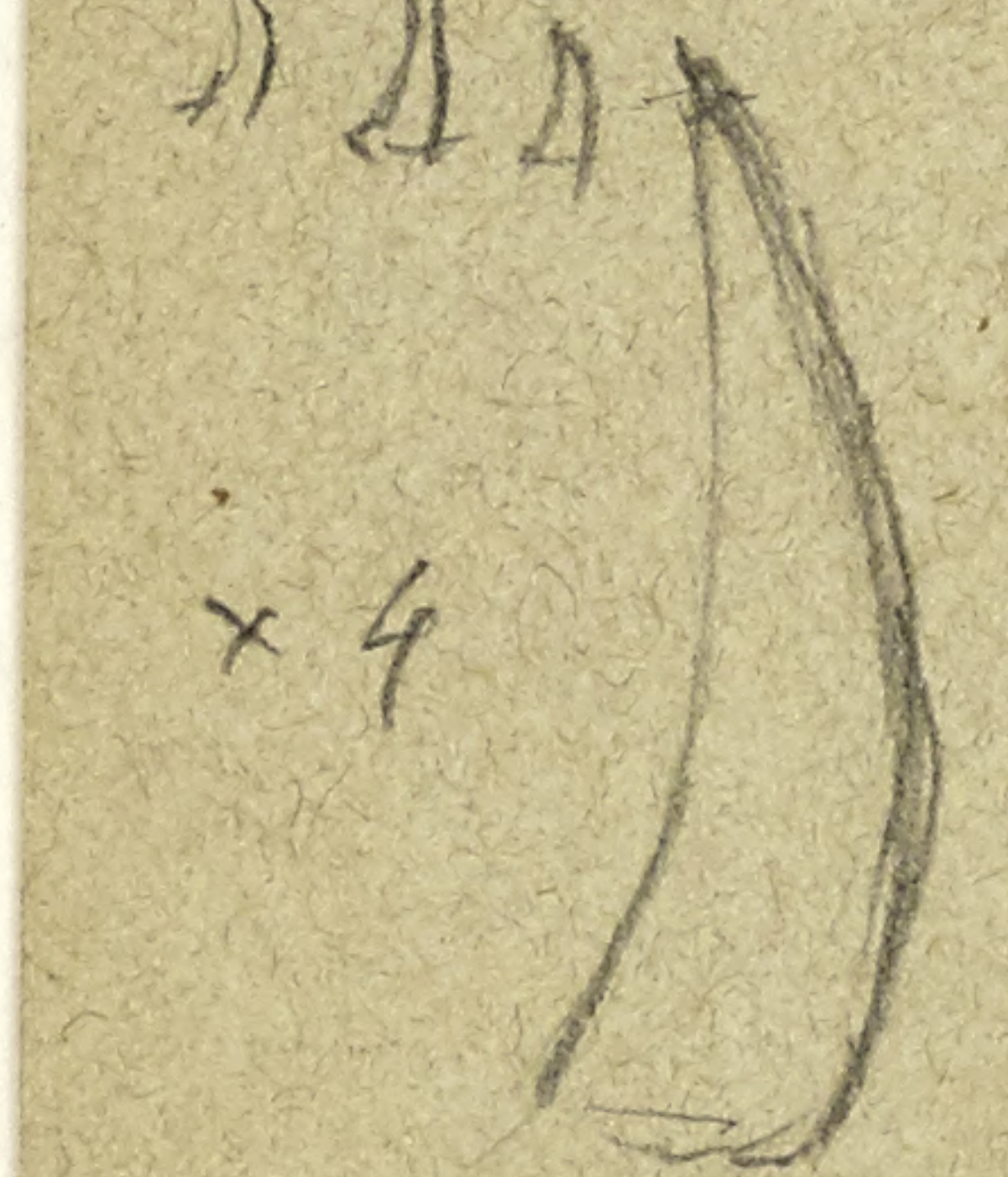
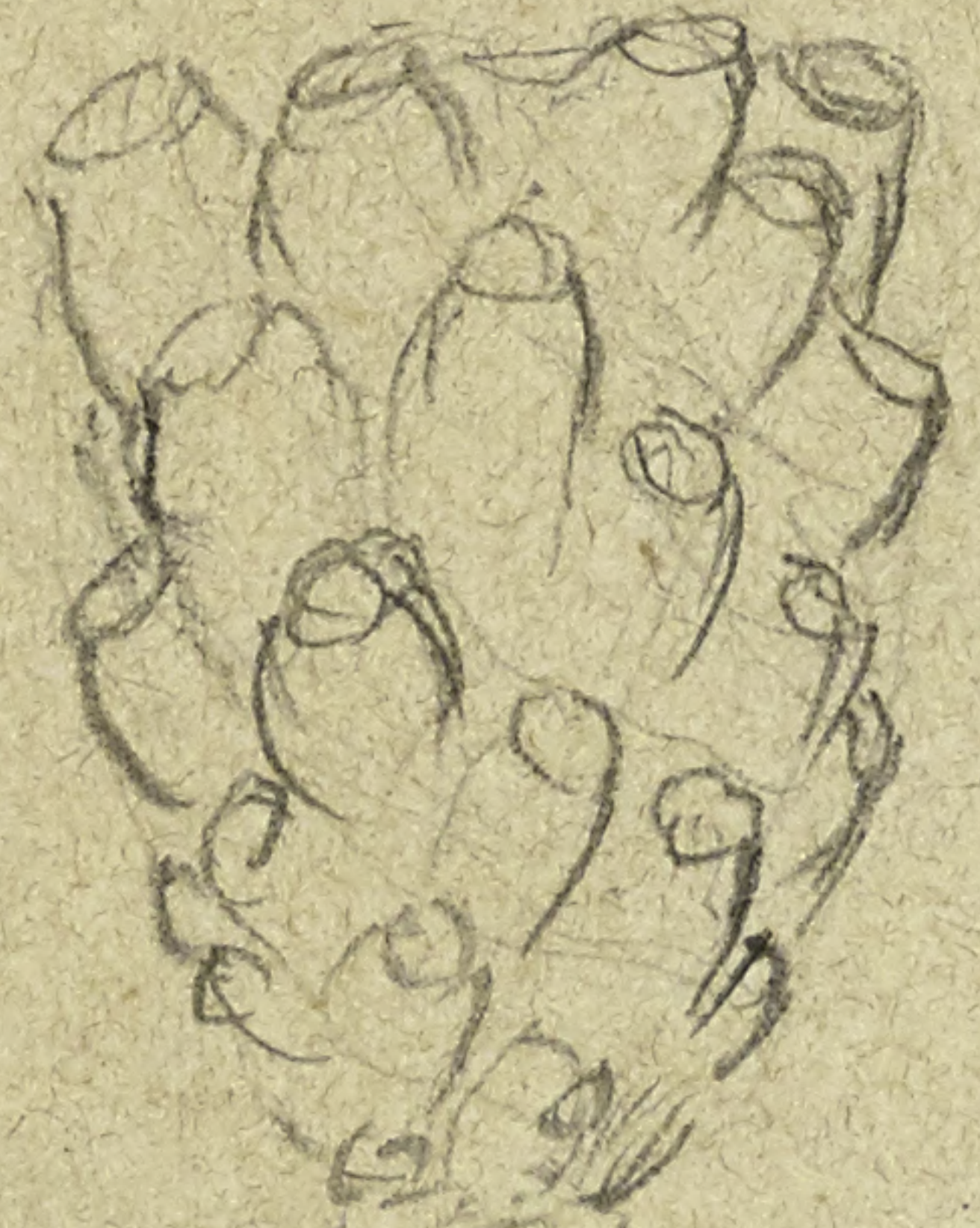
Opuntia Whipplei ? rec'd July 18 1877

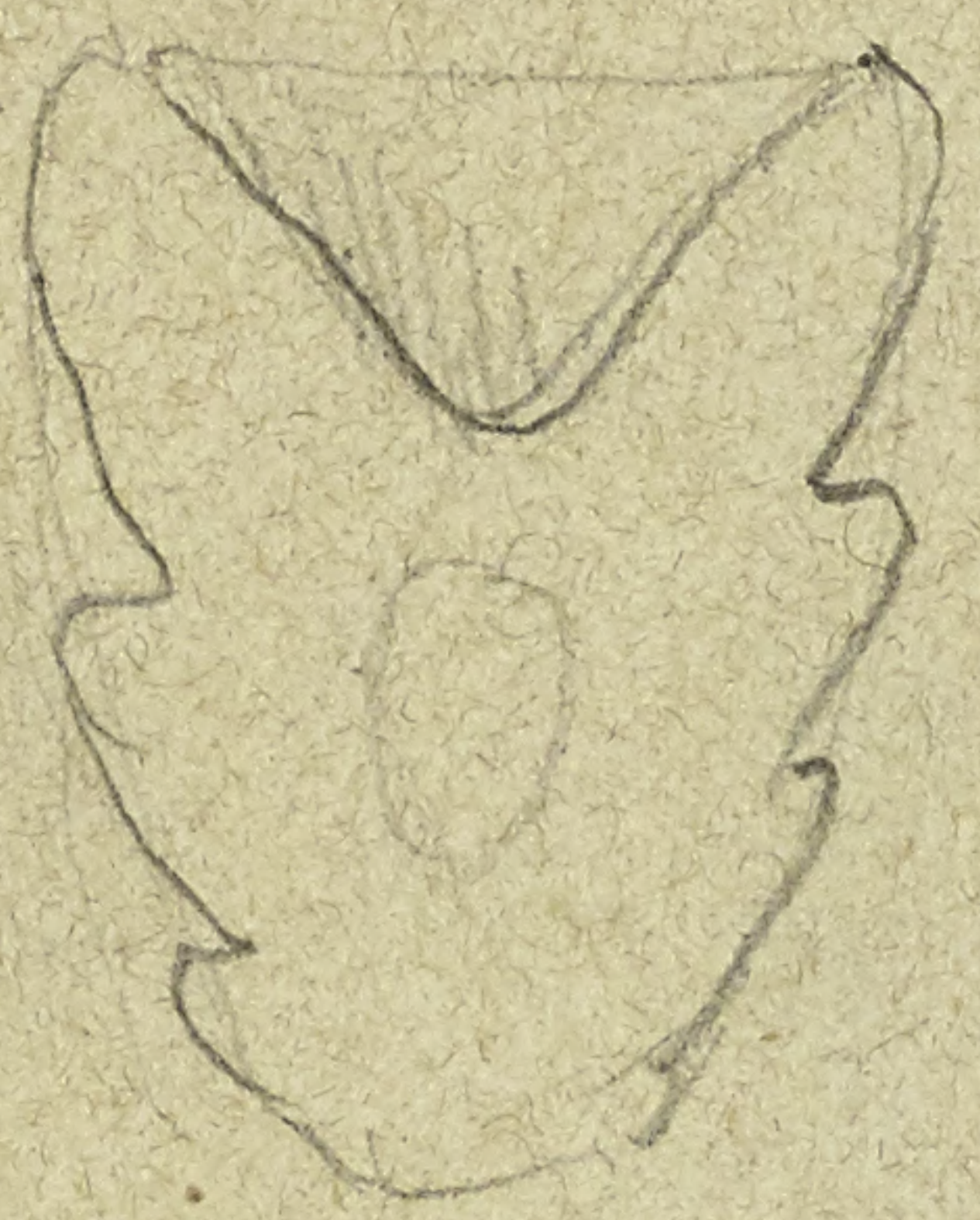
Dr Palmer Utah

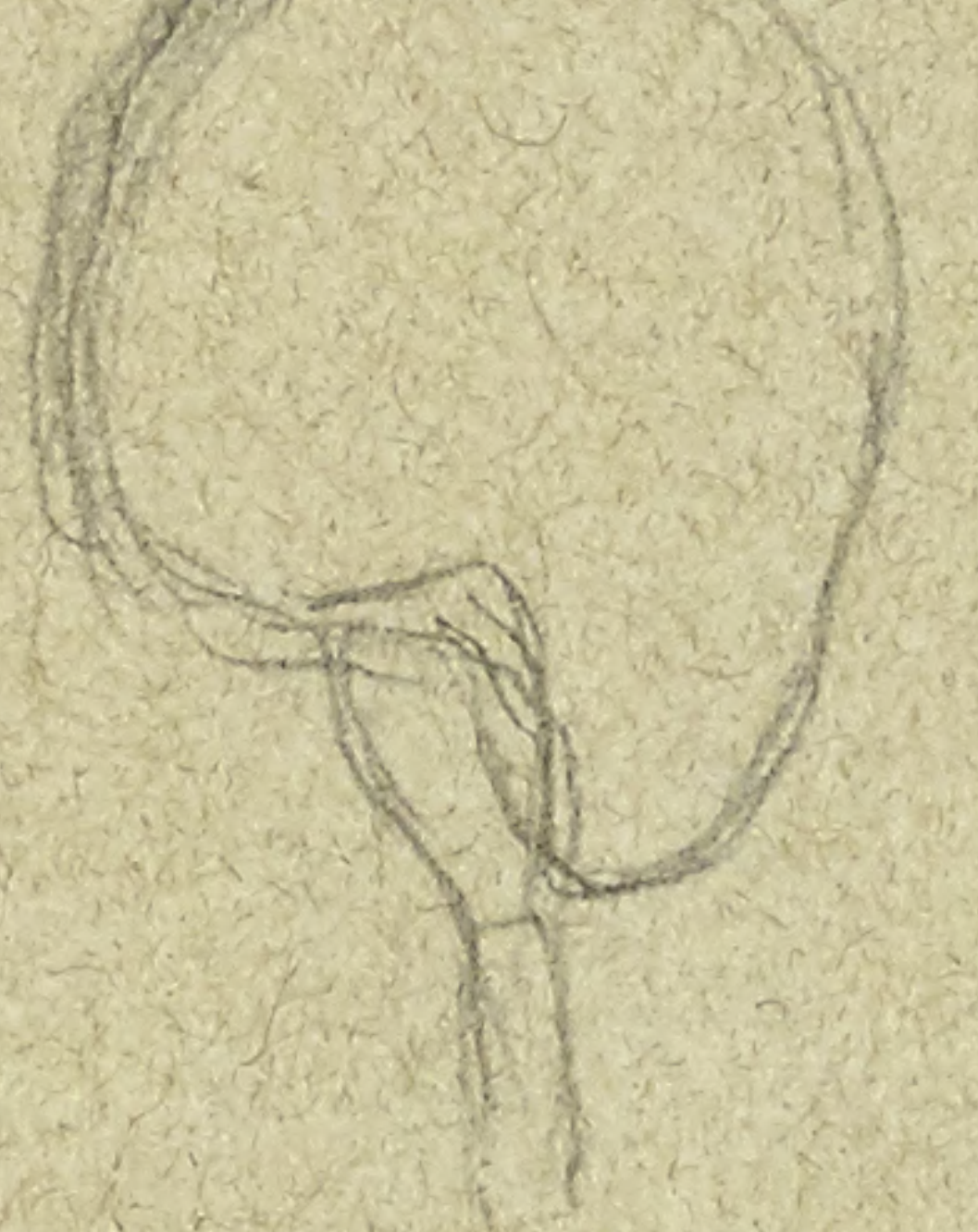


leaves
on upper part
of ovary
5 mm long



young fruit
40–45 areolae





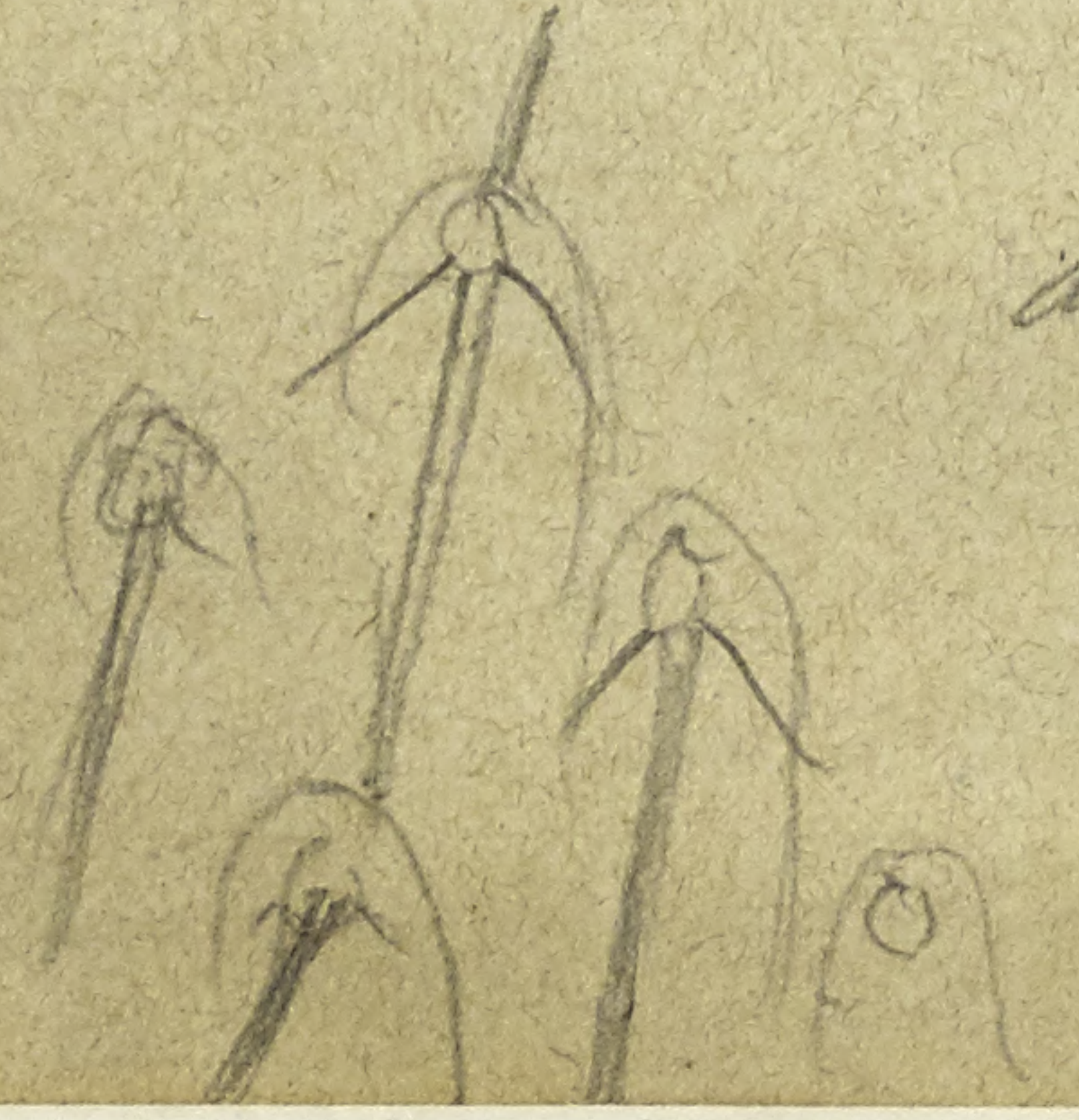
×10
young
seed

older branches 9 younger bearing
branches 6 lines diameter

bundles of very pale yellowish
fine bristles on upper part of ovl
not immersed areol

areolae 4–8 or 9 lines
apart 1 sheathed
deflexed spine
a few other weaker ones, and occasionally an
erect one

areolae 5/8 order



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2785

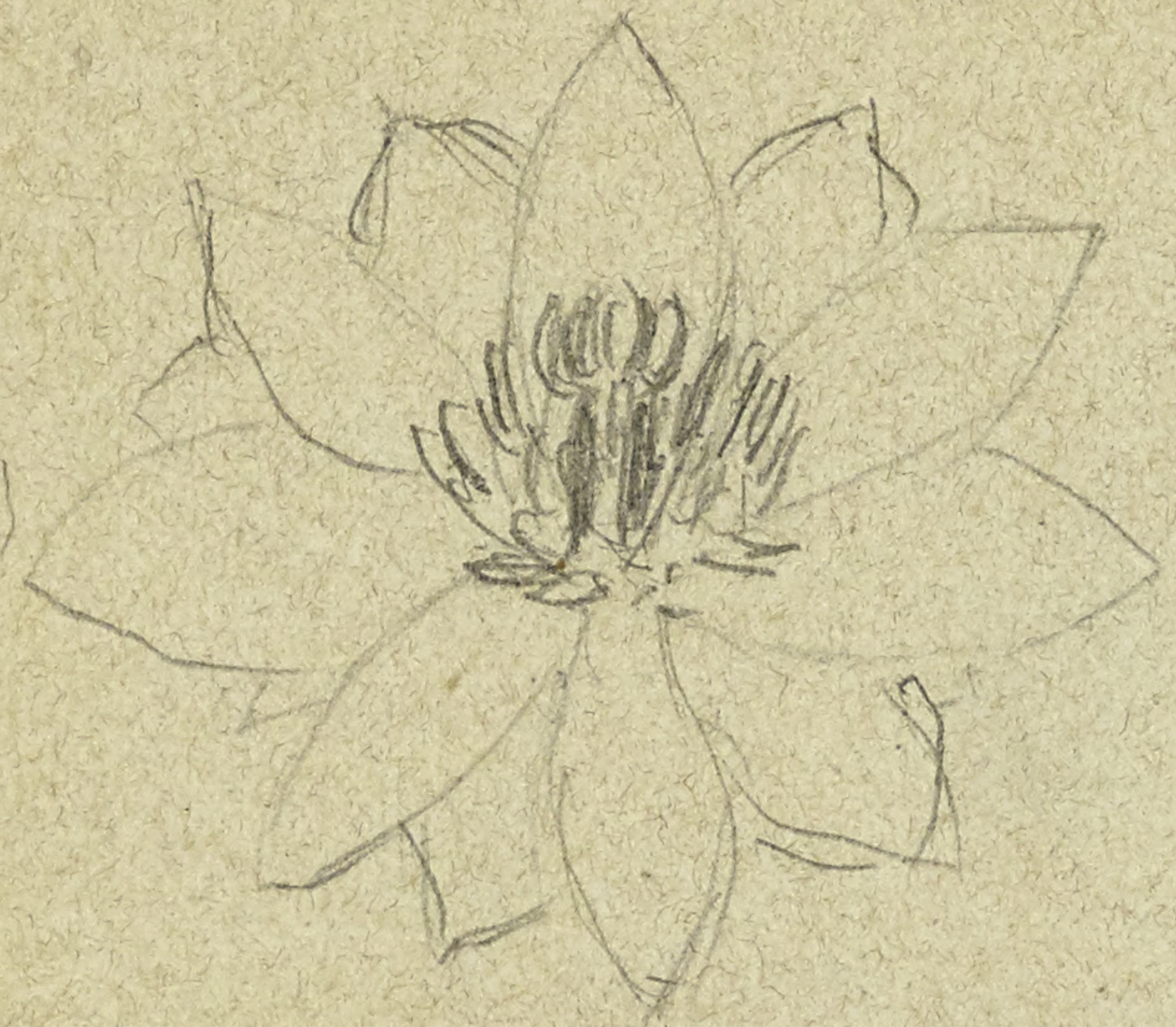
ALL THE NEW REMEDIES CONSTANTLY ON HAND

ALEX. LEITCH,
APOTHECARY & CHEMIST,
Cor. 4th and Olive Sts., St. Louis.

CHEMIST. A

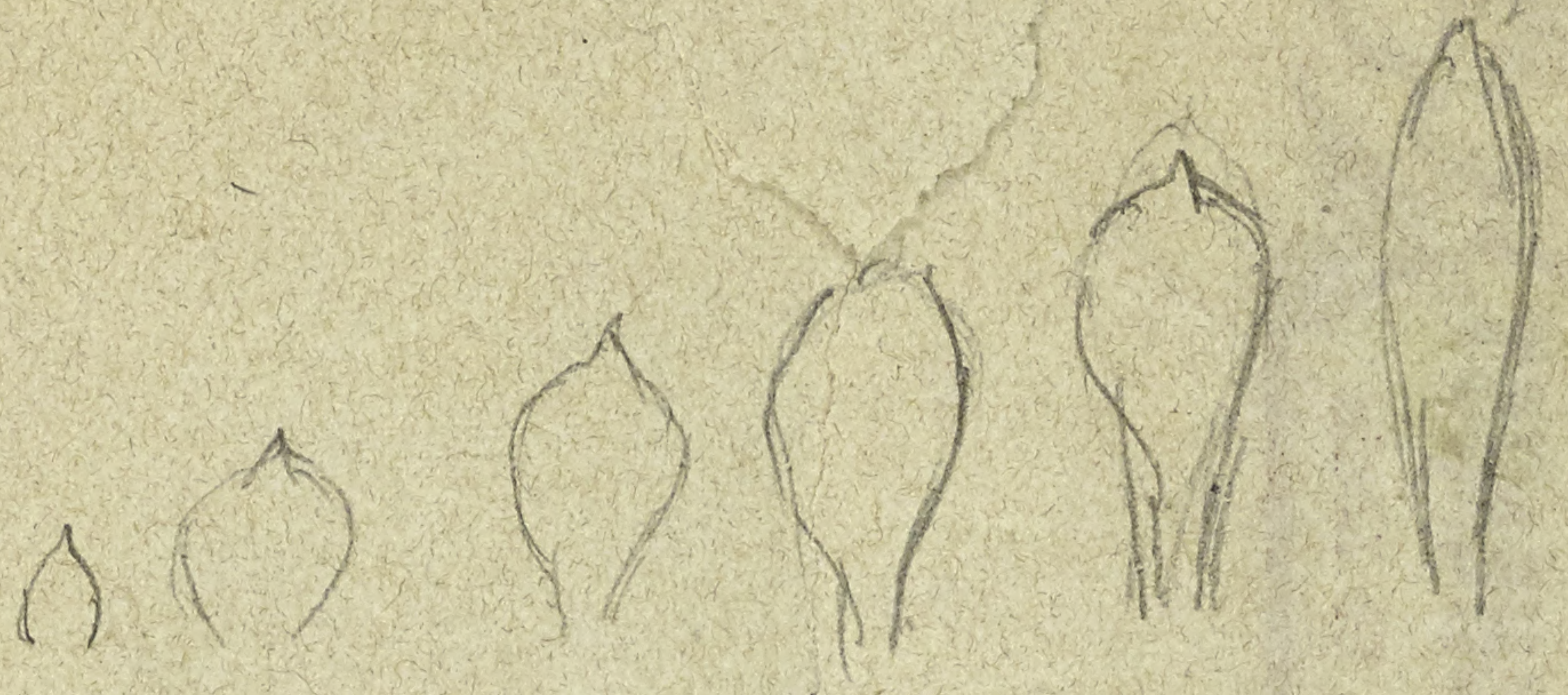
Opuntia Whipplei ?
E Palmer, Utah

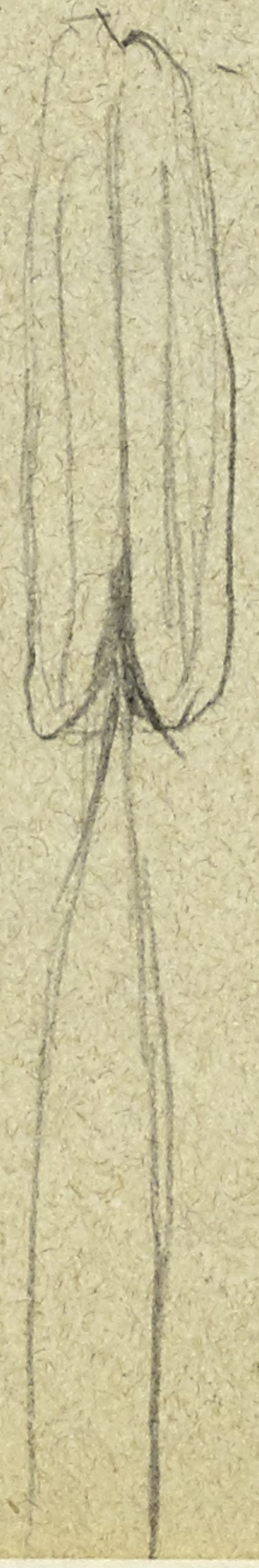
July 19 1877

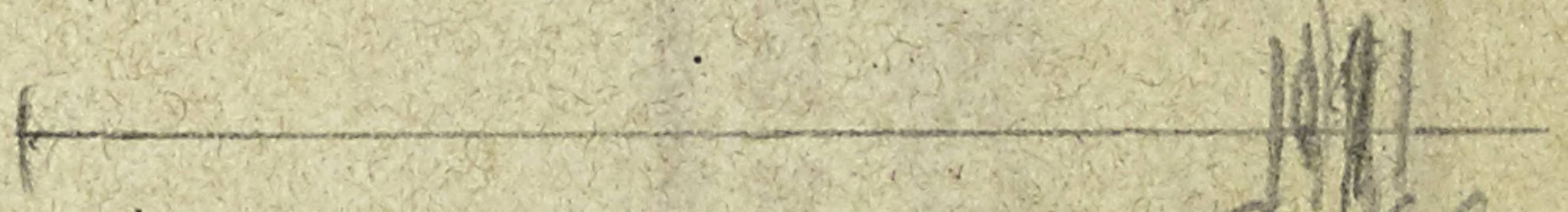


flower 18–20 l. diamet
yellow

8 stigm







diameter of Pollen

$\frac{35-39}{415}$ mm

= 0.084 – 0.094 mm

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2786

CHEMIST.

ALEX. LEITCH,
APOTHECARY & CHEMIST,
Cor. 4th and Olive Sts., St. Louis.

ALL THE NEW REMEDIES CONSTANTLY ON HAND

0084
3
94

415
3500
3320
1800

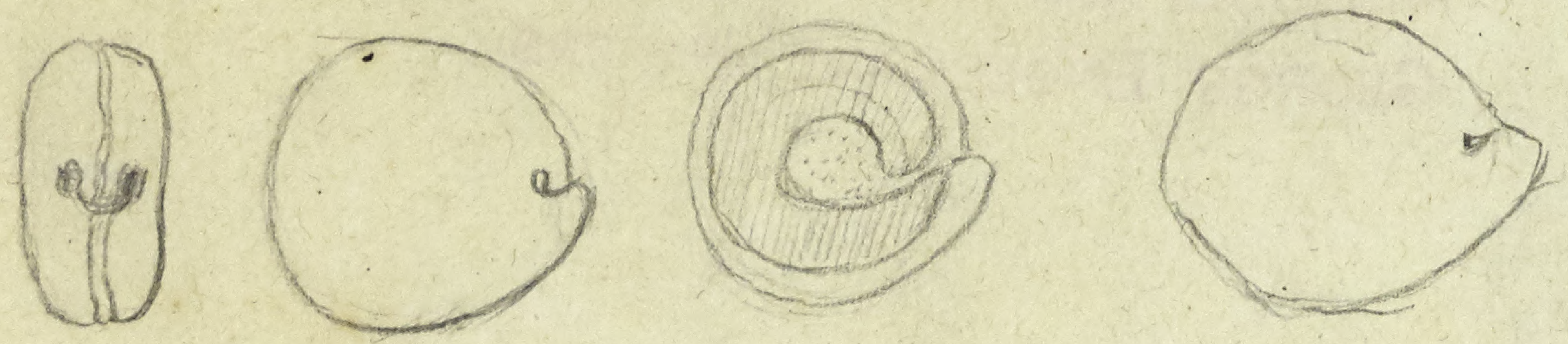
3900
3735
165

Op. Whipplei

Jan 26. 1875

Dr Bigelow 1855

x 4



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2348
AND
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Olive St.

OTHECARY
ST. LOUIS, MO.

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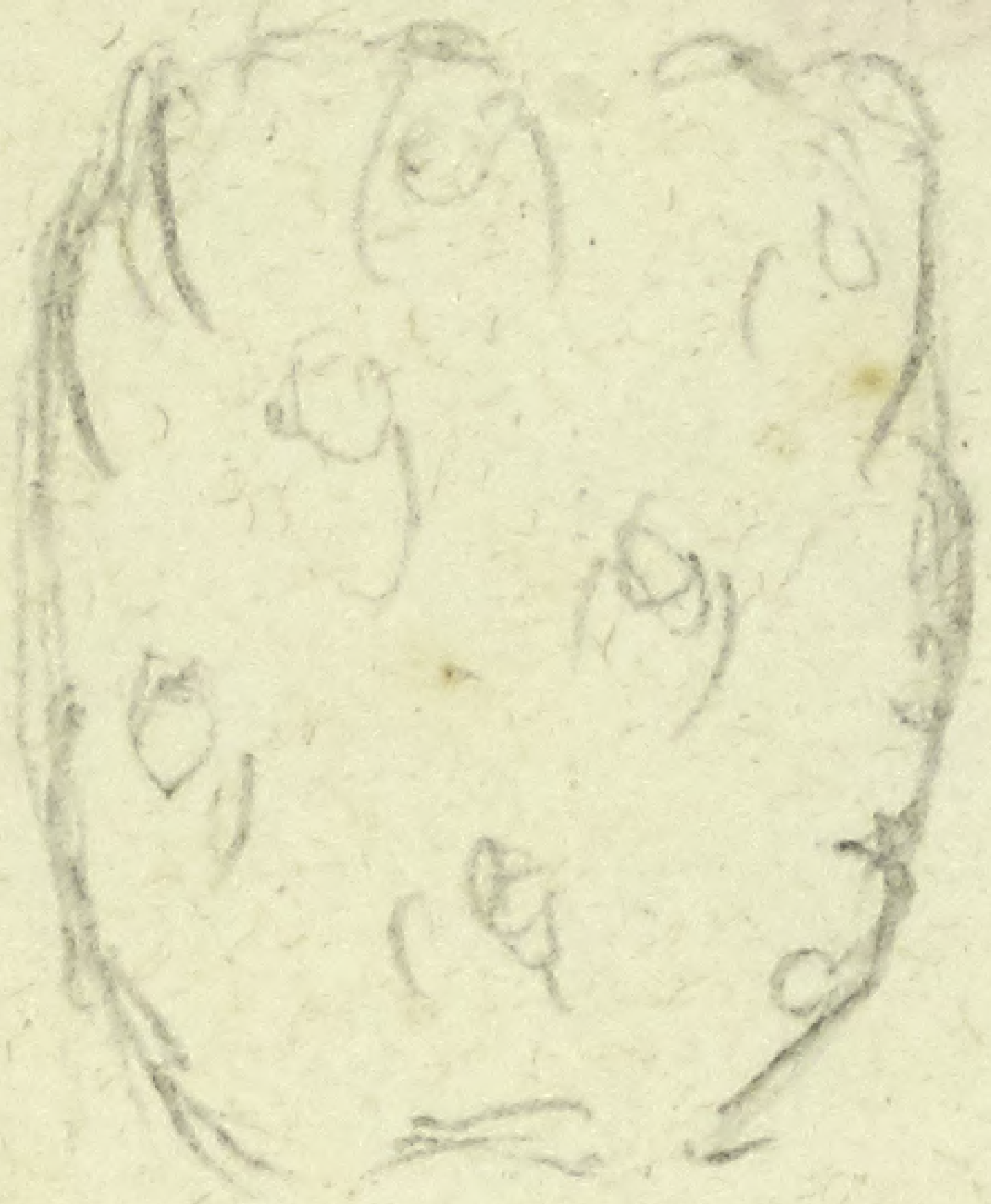
March 28 1876

Opuntia Whipplei

Spinosior

No 5 A Schott, Chihuahua

Valley of Santa Cruz River June 1855



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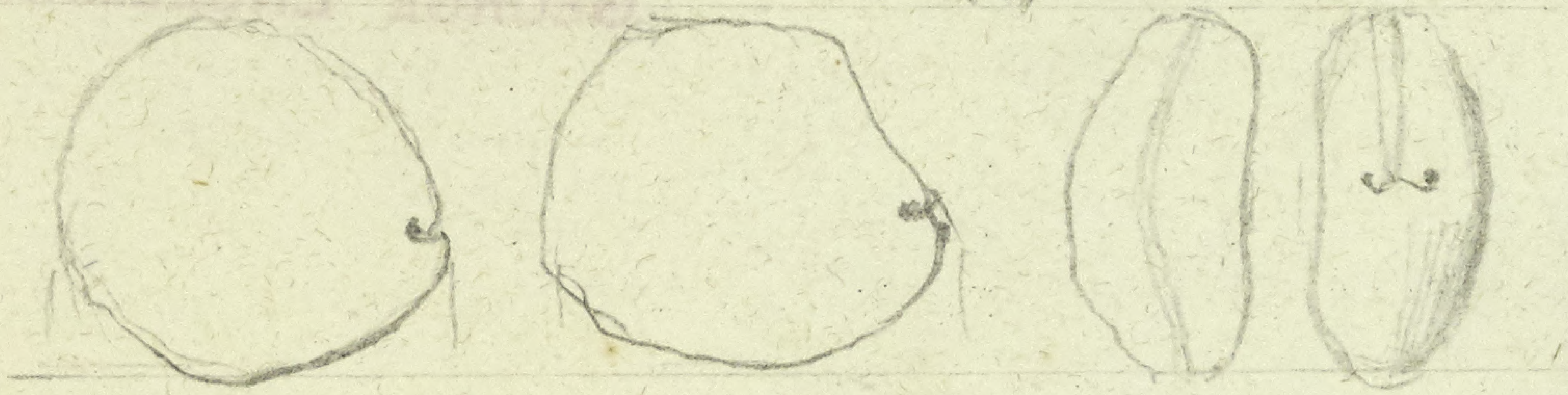

raphe incomplete

2788

Leitch,
RY & CHEMIST,
live Sts., St. Louis.

Opuntia Whipplei mostly two feet high (rarely 3 feet) very much branched bushy — birds build nests in it

E Palmer 1877

2789

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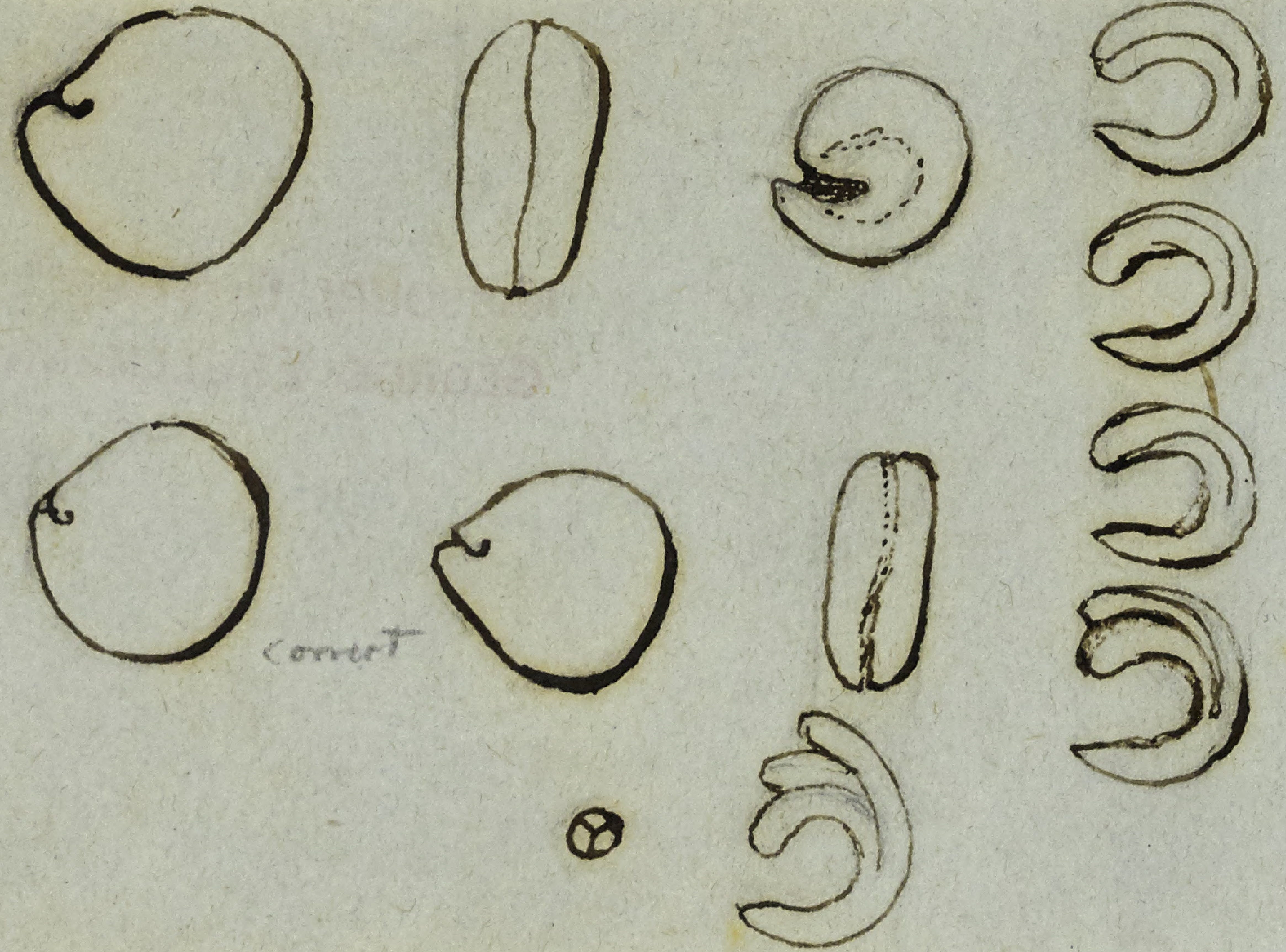
1855

2 Op. Whipplei

Bigelow



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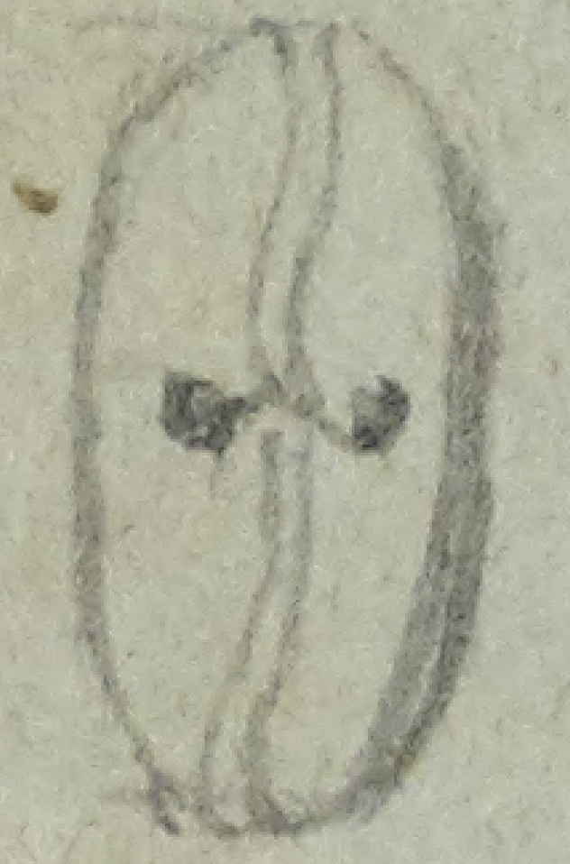

March
1876

Seed: larger ones 1.8 – 1.9 broad 1.6 – 1.7 high 0.7 – 0.9 thick – commissure linear, distinct

Smaller ones 1.5 broad 1.4 – 1.5 high and 0.6 – 0.7 thick – Commissure a little broader, but not 0.1 line wide

Seeds rather regular and smooth, with no beak or a blunt and short one lower lip much protruding above the upper one

Cotyledons irregularly accumbent,, or oblique in one instance 3 Cotyledons seen

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"H"

Dr E Coues

Opuntia Whipplei var ? ~~[illegible]~~

~~Cereus~~ - Much resembling and apparently not specifically different from Cereus "D" of these mss. notes.

Spring specimen, taken when just commencing to bud. - "Skull Valley" 20 miles South of Whipple.

The very numerous individuals of this species met with everywhere, still retain, at this date, the fruit mentioned under "D"; in color and general aspect hardly ~~[illegible]~~ changed from last Fall

N.B. For remarkable ~~change~~ difference in forwardness of plants of Whipple & Skull valley (only 20 miles south, but con=siderably less elevated) notice specimens in general herbarium marked with that locality.

May 3rd 1865

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"H"

Field notes on

Cereus

Elliott Coues

May 3rd, 1865

Dr. E. COUES U.S.A. Washington D.C.
JAN 28 1880

Arizona

Febr 1868

Dr E. Palmer No 88
(private mark 103)

Opuntia Whipplei, spinosior (but fl. purple
wide branching bush, bright purple flowers, white stigmas
near Tucson in fl. & fruit Aug 10

branch before me 3 years old 6 inches long, 1 inch diameter, tubercles 9 l. long 4 l wide in 6/10 arrangement. about 10 slender sheathed spines, a central one longer than the others, all 3 – 6 l. long

3 flowerbearing branchlets, 2 inches or over long 9–10 l. diameter, somewhat clavate; tubercles 7 l long 2 – 2½ l wide, in the same 6/10 order. spines fewer and shorter — Another detached branchlet with smaller shorter tubercles in 7/11 order

flowers 2½ inches in diameter "bright purple" ovary nearly 1 inch long (or (sterile?) longer and more spiny) tuberculated; about 30 white woolly areolae, upper ones with some spines; about 8 ovate cuspidate sepals 8 or 10 large obovate-spathulate purple petals, 1 inch in length, half as wide; anthers linear 5 or 6 rosecoloured or whitish incurved stigmas.

Berry 1 inch long, oval, tough fleshy, with a wide and shallow umbilicus, somewhat tuberculate at last spongy and dry (is this regular, or only in consequence of being gathered unripe?)

Seeds regular, circular, 1/2 – 1 3/4 l. diameter commissure narrow, often nearly obsolete

× O. Whipplei has yellow flowers!

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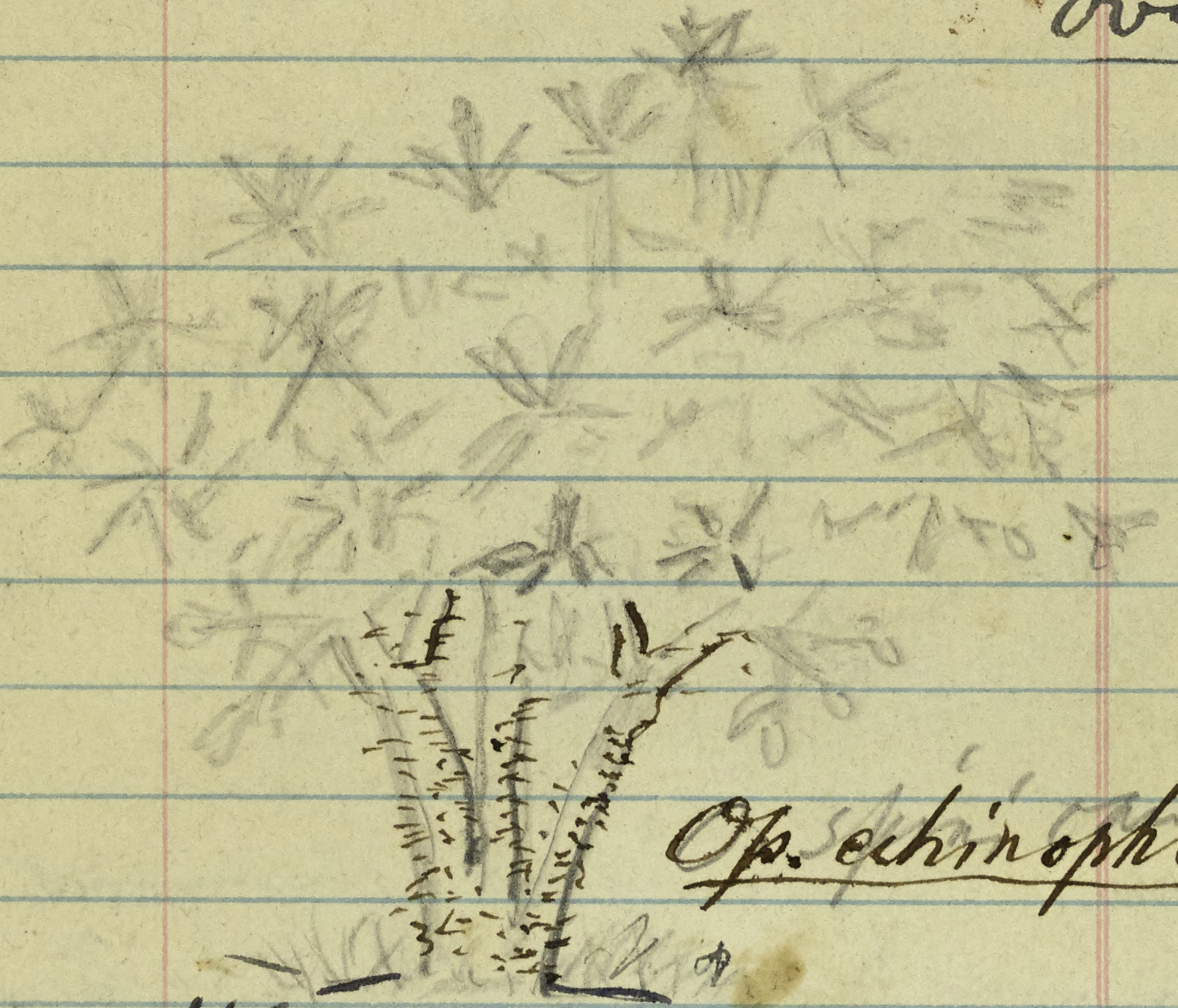
over   8" diam at base   all over covered with spines!

Op echinophloea 8' high   3 main branches 4-5" thick, branching again 5 feet from ground, last branches 1 inch through; fruit tuberculate never proliferous

over



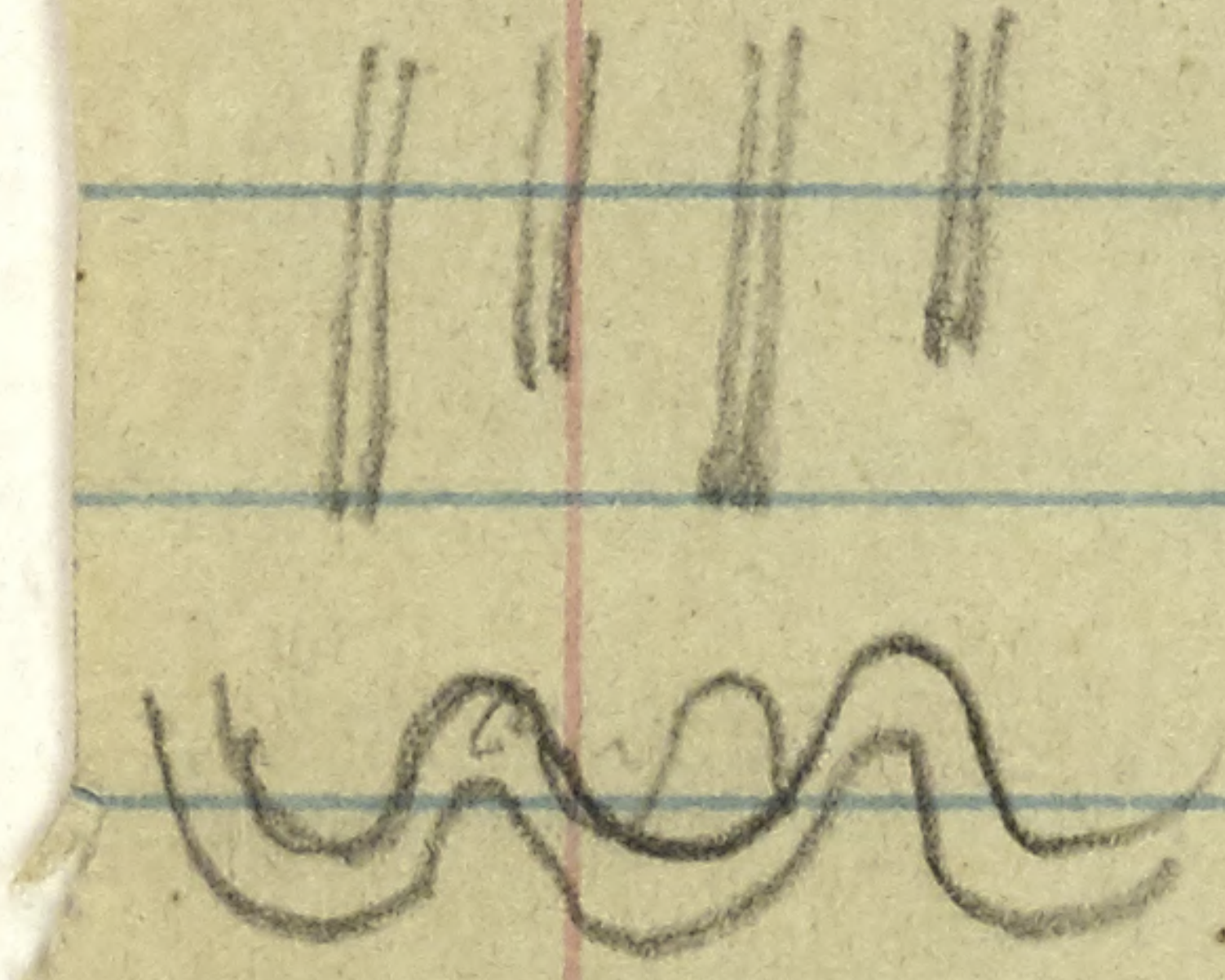
Op. echinophloea

flowers said to be 2' diam   May & June, purple

3 nests of Mocking birds in this bush

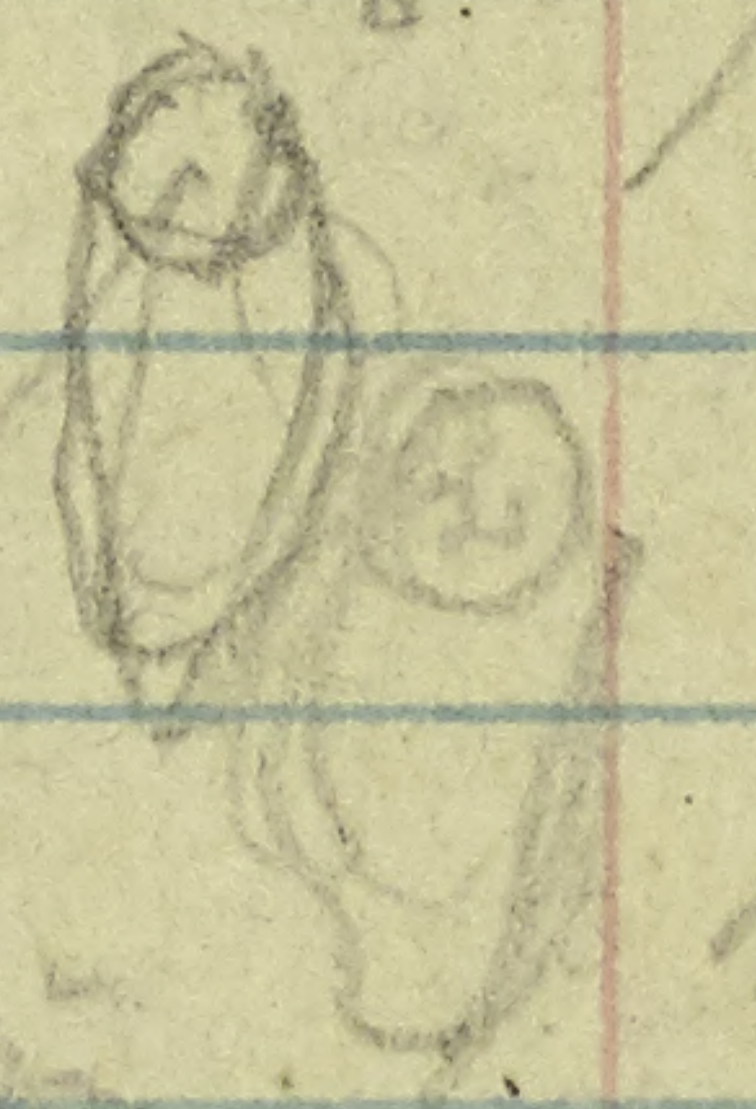
Jamesoni 27/9 Brackland

curious fold in the tube of the calyx, bent down, somewhat closing the nectar cavity, sinuous, the 4 upper lobes of the 2 indef correspond with the 4 upper (calycine) stamens, the 4 lower with the 4 inner (petaline) stam



~~Palmeri leaves 17 × 2" scape 8' naked 8" [illegible] panicle with 2 [illegible] 13 branches 1' long [illegible] 2–3 zigzag~~

over



Opuntia echinophloea Sep 25 1880 on Mesa

12–15 spines grayish or brownish more on older joints; sheaths firmly adhering.

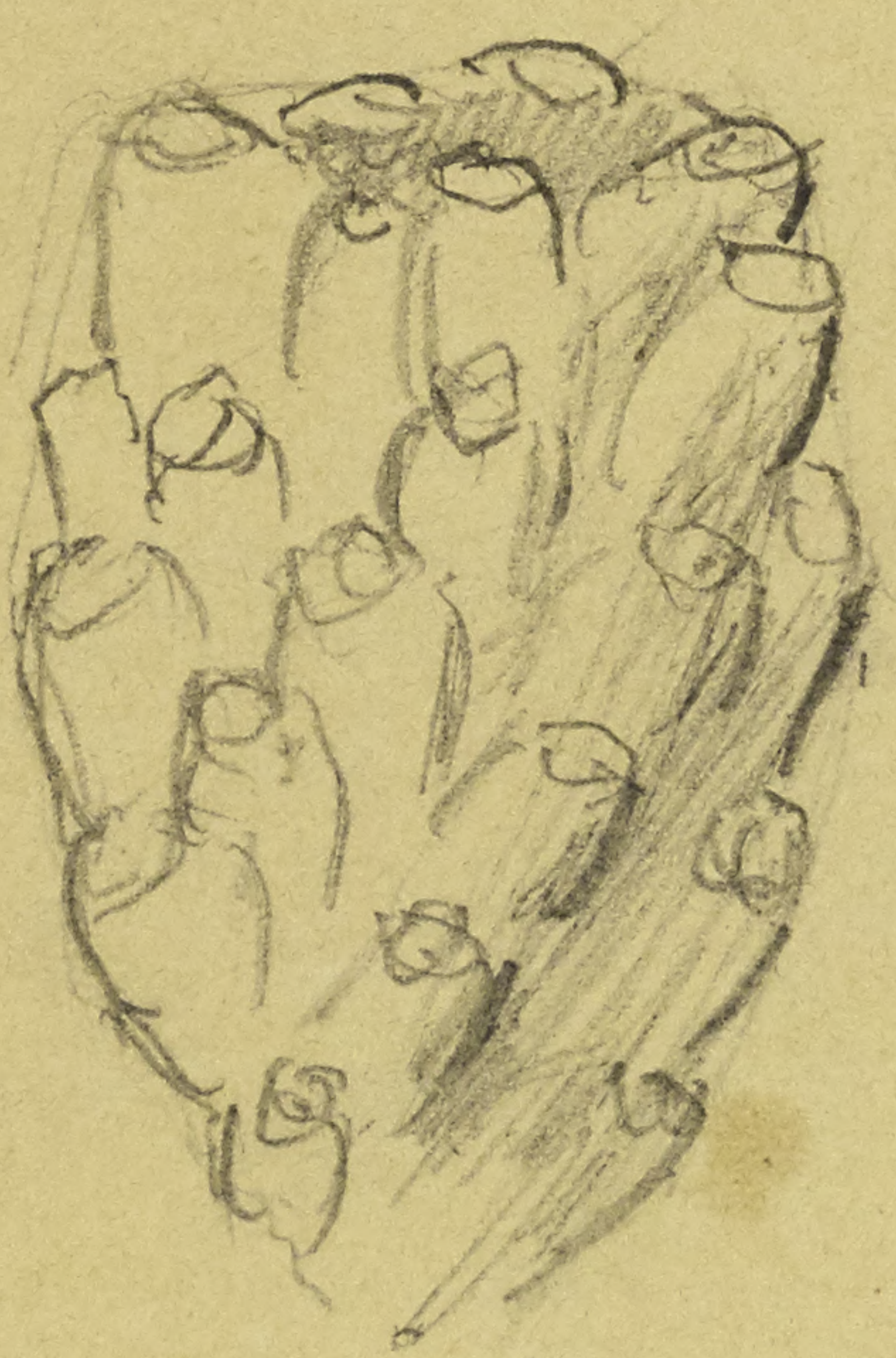
tubercles large-obovate, prominent; large areola at the end — berry looses its spines — tuberculate, yellow tough-fleshy — allied to O. arborescens to which seeds approach — branches horizontal, verticillate

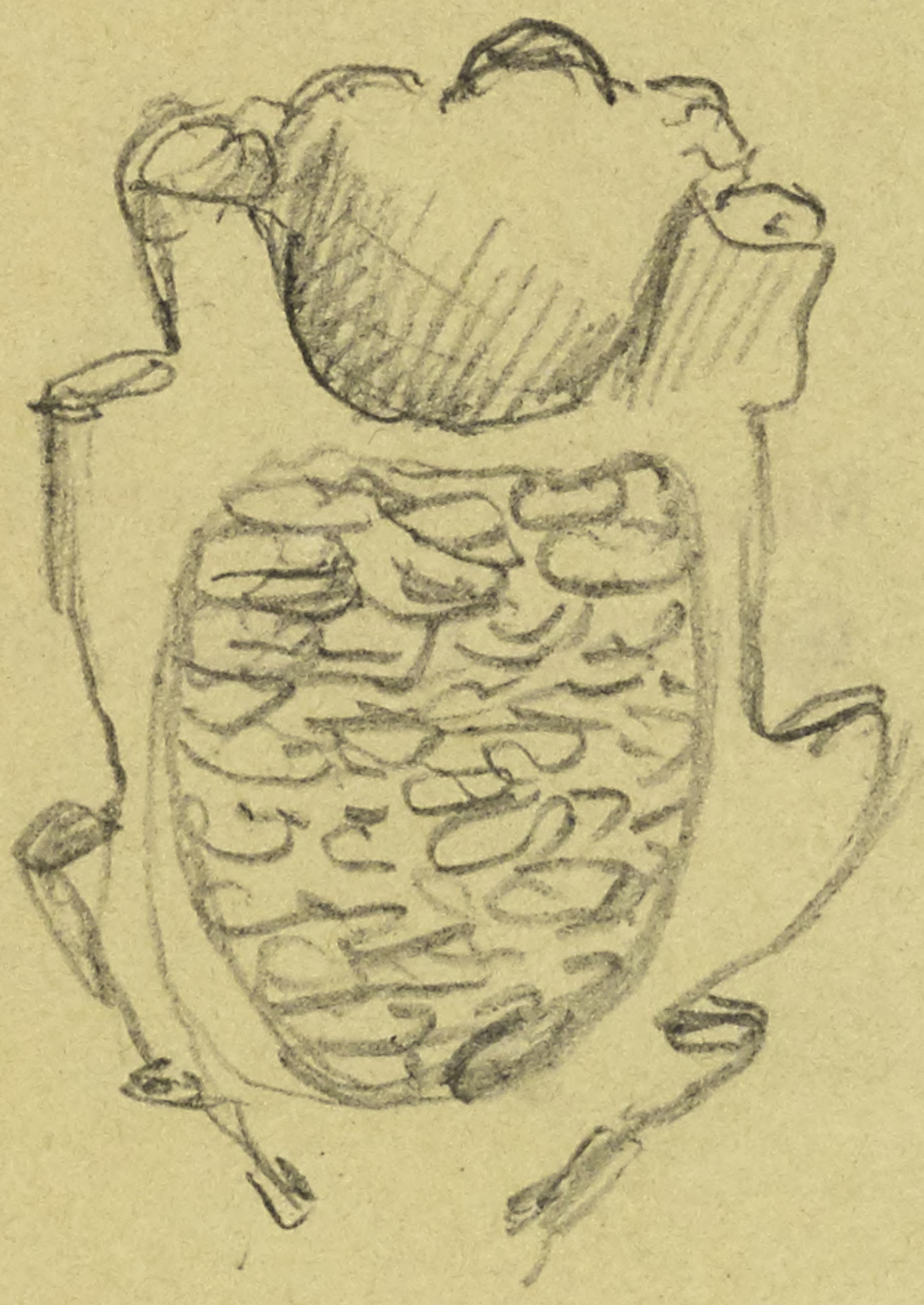
2793

Opuntia echinophloea Jan 27 1880

near, ~~at~~ South of Tucson, Arizona, Whipple ~~to the Santa Rita Mountains~~ Sept 80

9E





fruit 1 1/2 inch long, nearly 1 inch wide yellow, rather fleshy; deeply umbilicate, with about 40 spineless areolae on tubercles, in $\frac{6}{10}$ $\frac{7}{11}$ $\frac{8}{13}$ & $\frac{10}{16}$ order, in the latter (all the larger fruit) the 6 and 10 spirals most conspicuous

Henry T. Rohlfing,

APOTHECARY,

No. 2600 Laclede Ave., S. W. Cor. Jefferson Ave.,
ST. LOUIS, MO.

No. .... *Date,* *187*

℞

2794

Geo. Engelmann, M. D.,
No. 3003 Locust Street.

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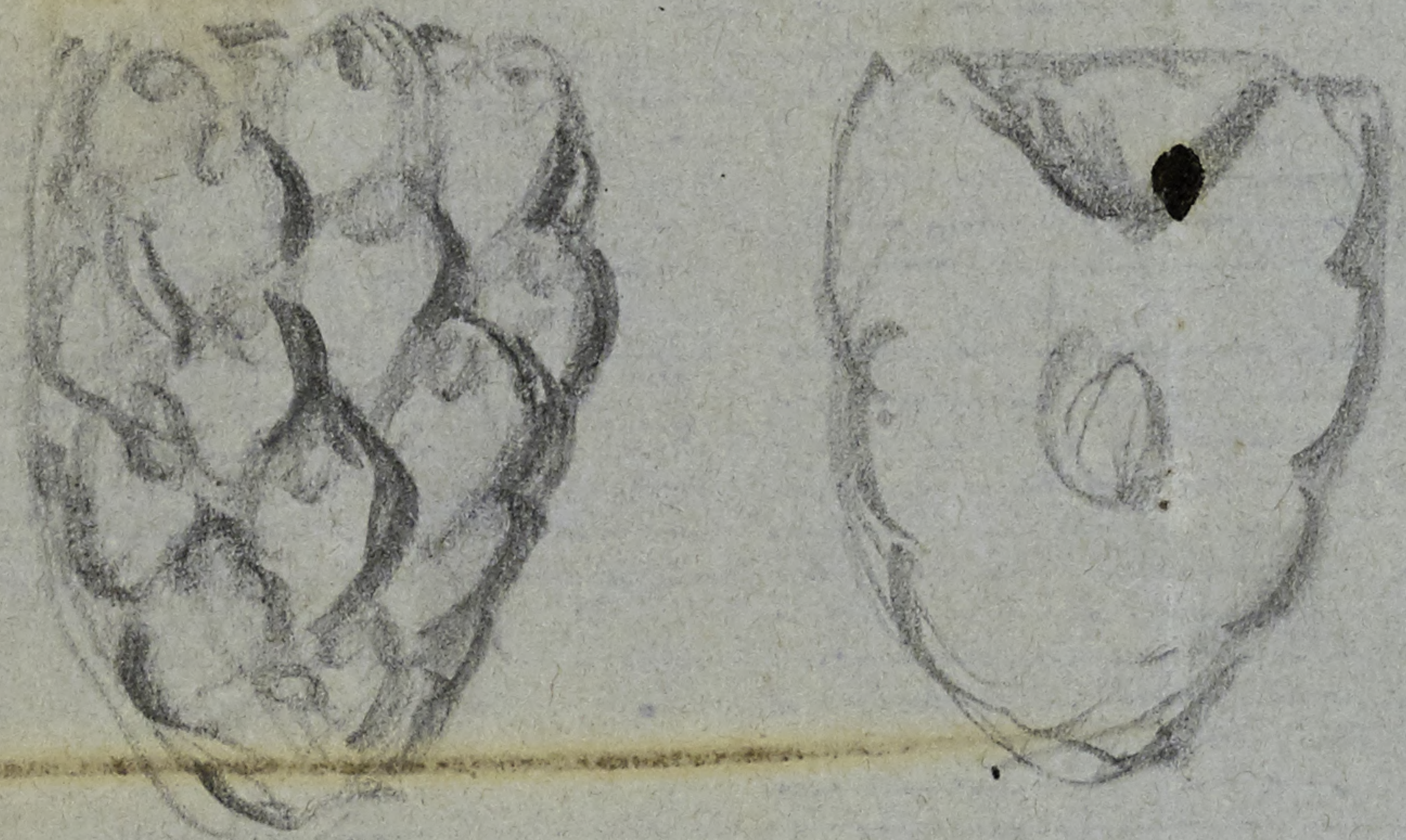
fulgida ?

good Opuntia ~~Bigelovii~~ ?

Dr Palmer 1870 Arizona



only sterile fruits, viscous-juicy, with rootlets and some sprouts — tuberculous with 25 areolae on rhombic pulvilli; areolae bristled not spiny; bristles greenish-straw coloured.

These fruits were planted in fall sprouted the following spring, and have made well grown plants in 1873

living in 1876

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Engelmann

t. Louis

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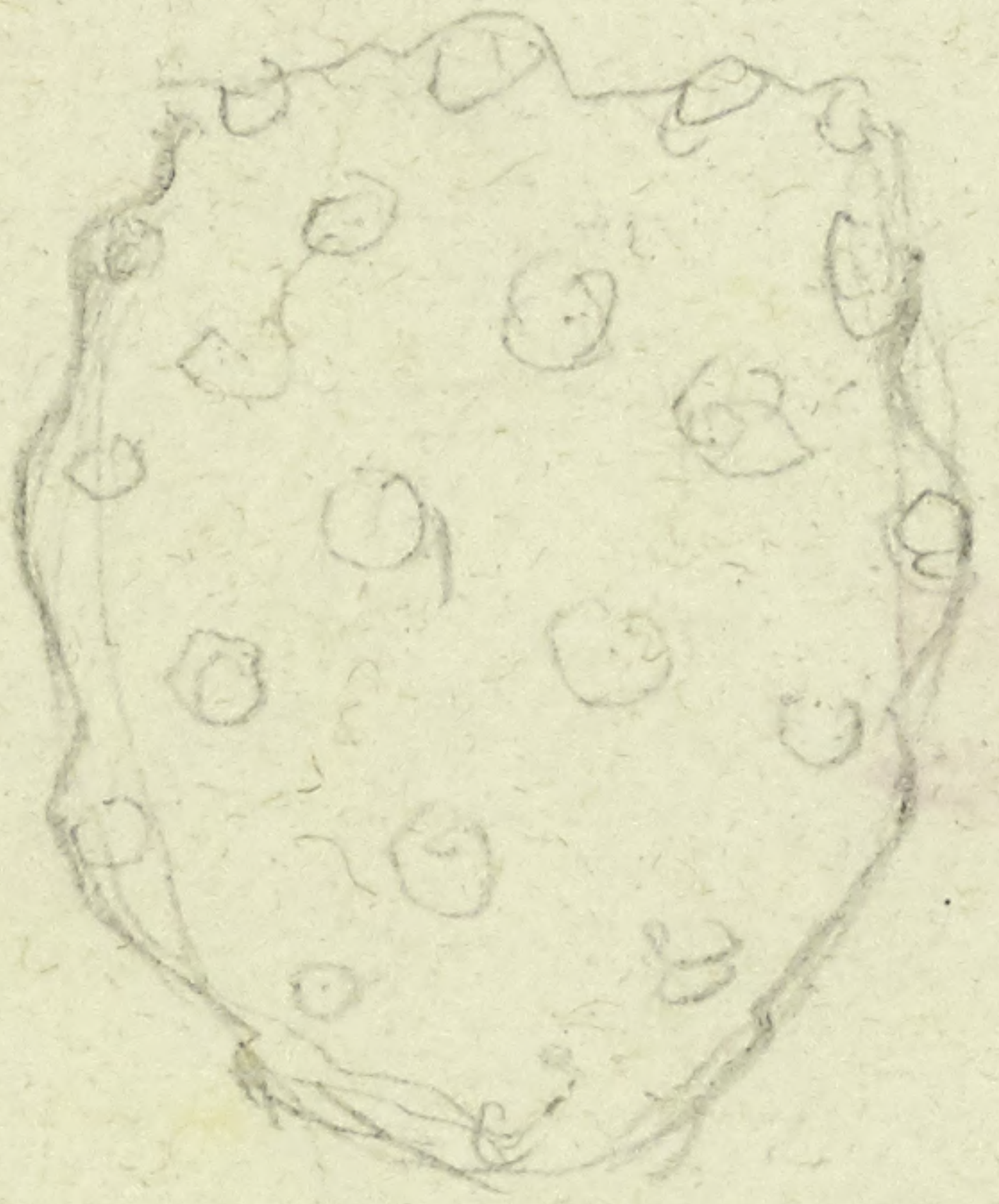
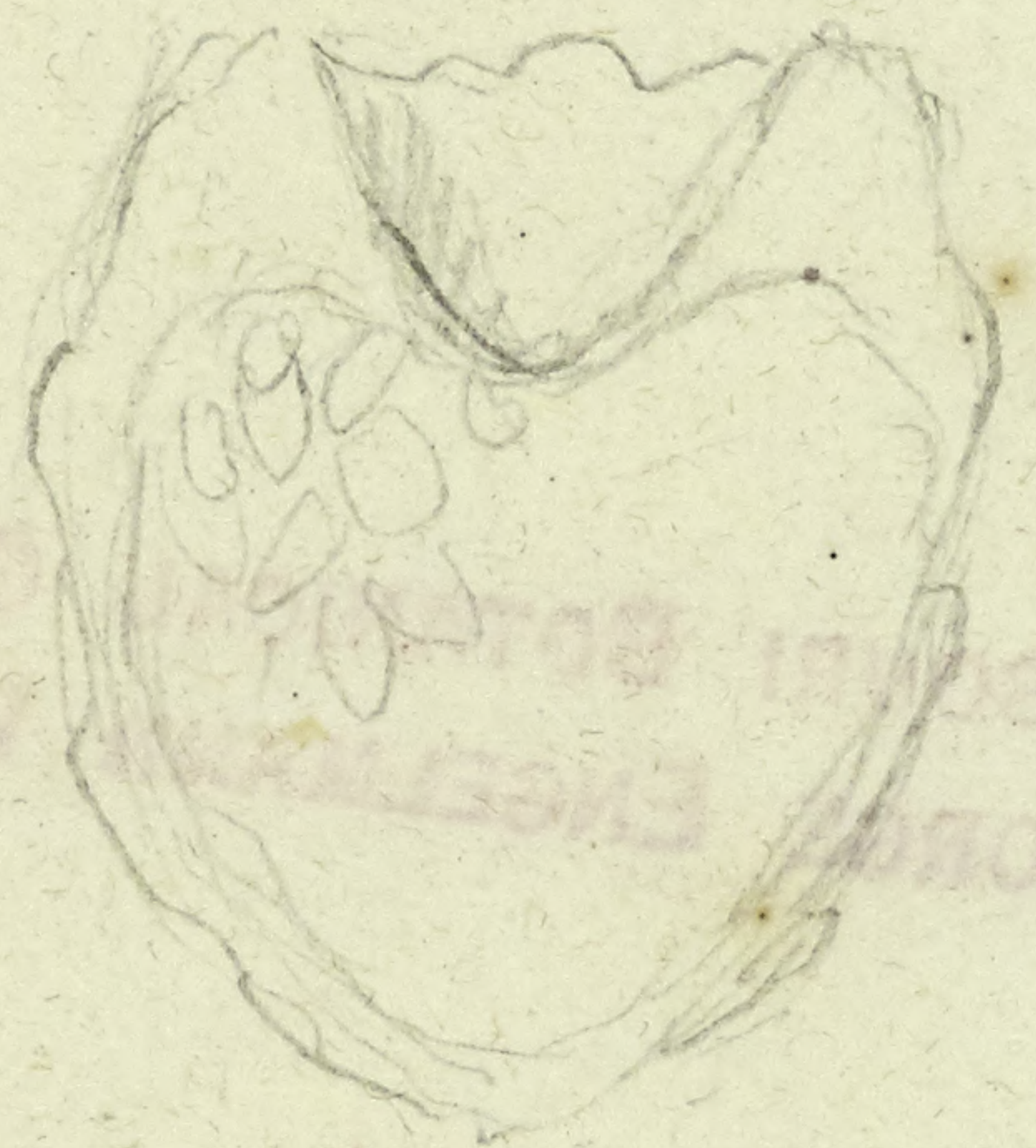
O Bigelovii ? ? March 26 1876

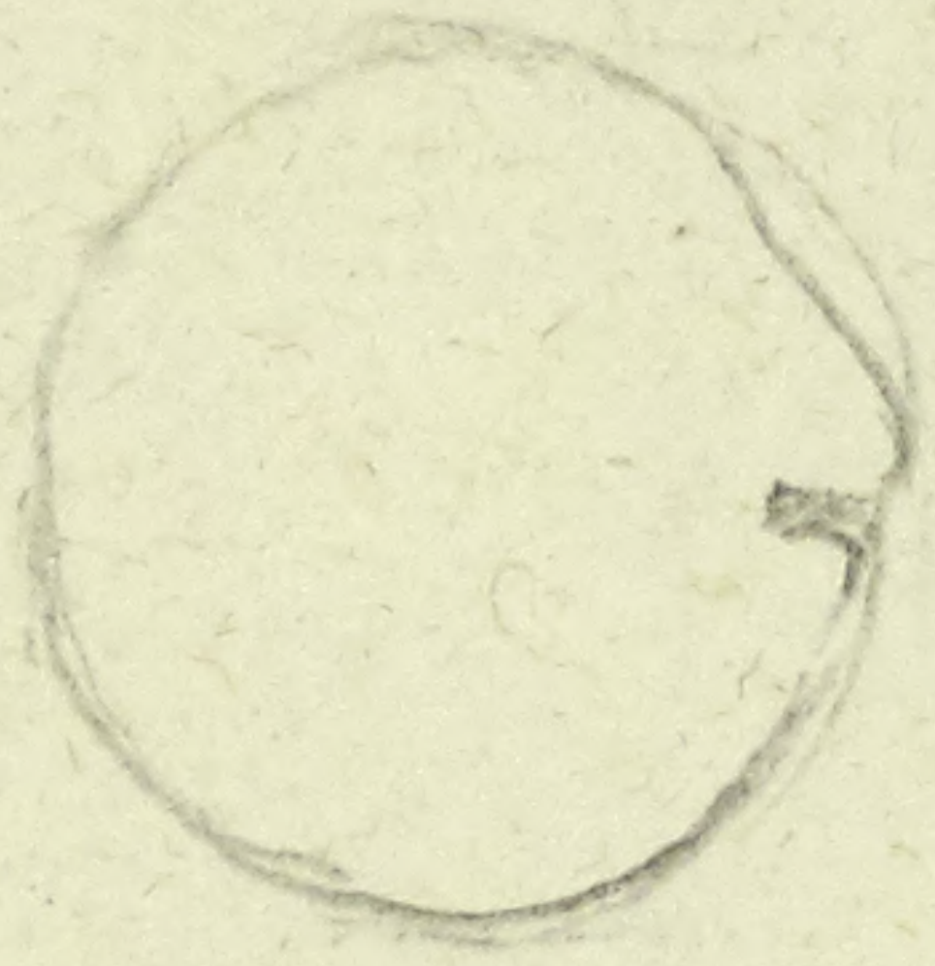
Dr Parry Arizona 1868 June B



30-40 areolae

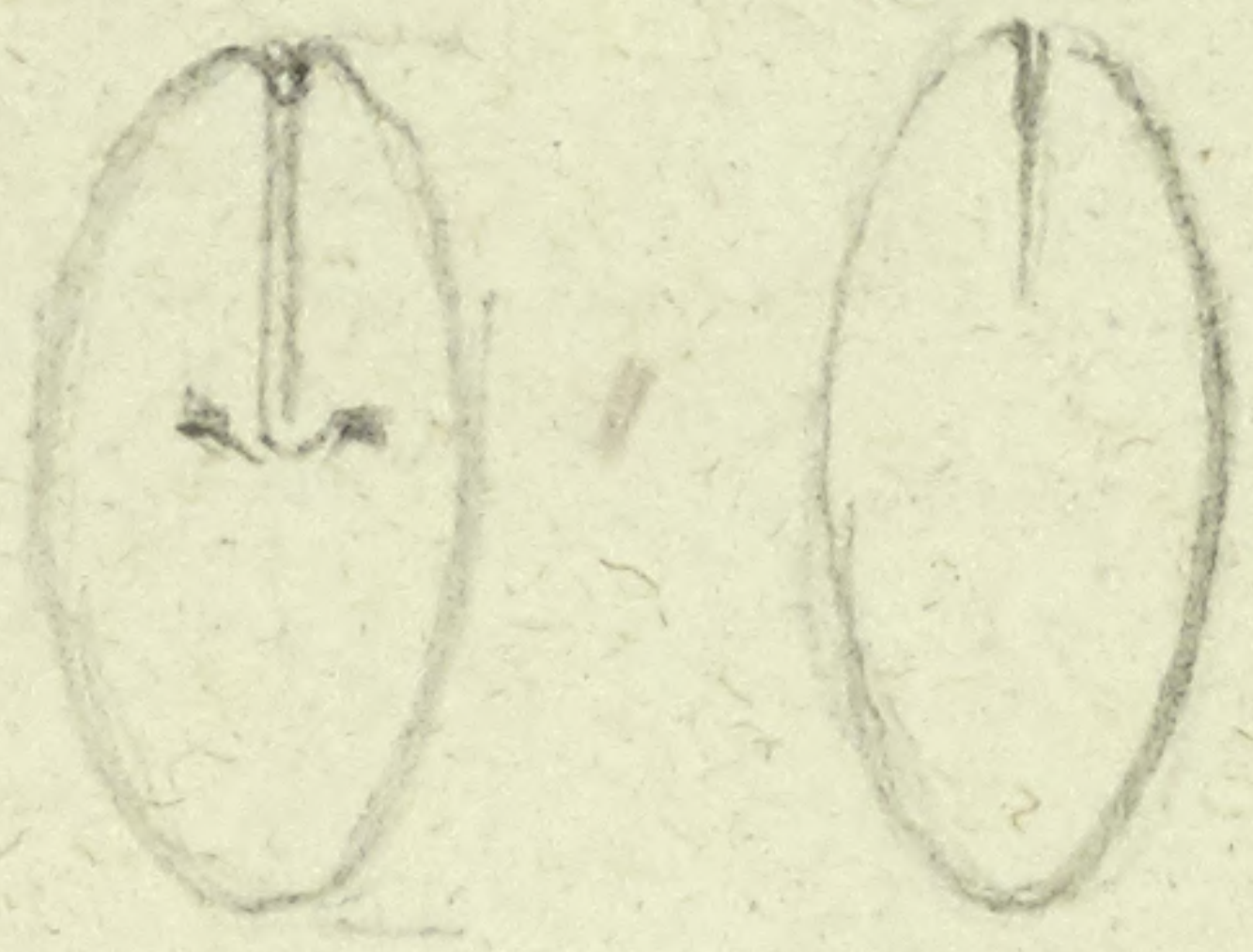


This is the only seed seen, which I can refer to O. Bigelovii and from same locality



seed regular lenticular

x4



(commissure) raphe linear and partial only on upper and ventral side visible !

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Alex. Leitch,
APOTHECARY & CHEMIST,
Cor. 4th & Olive Sts., St. Louis.

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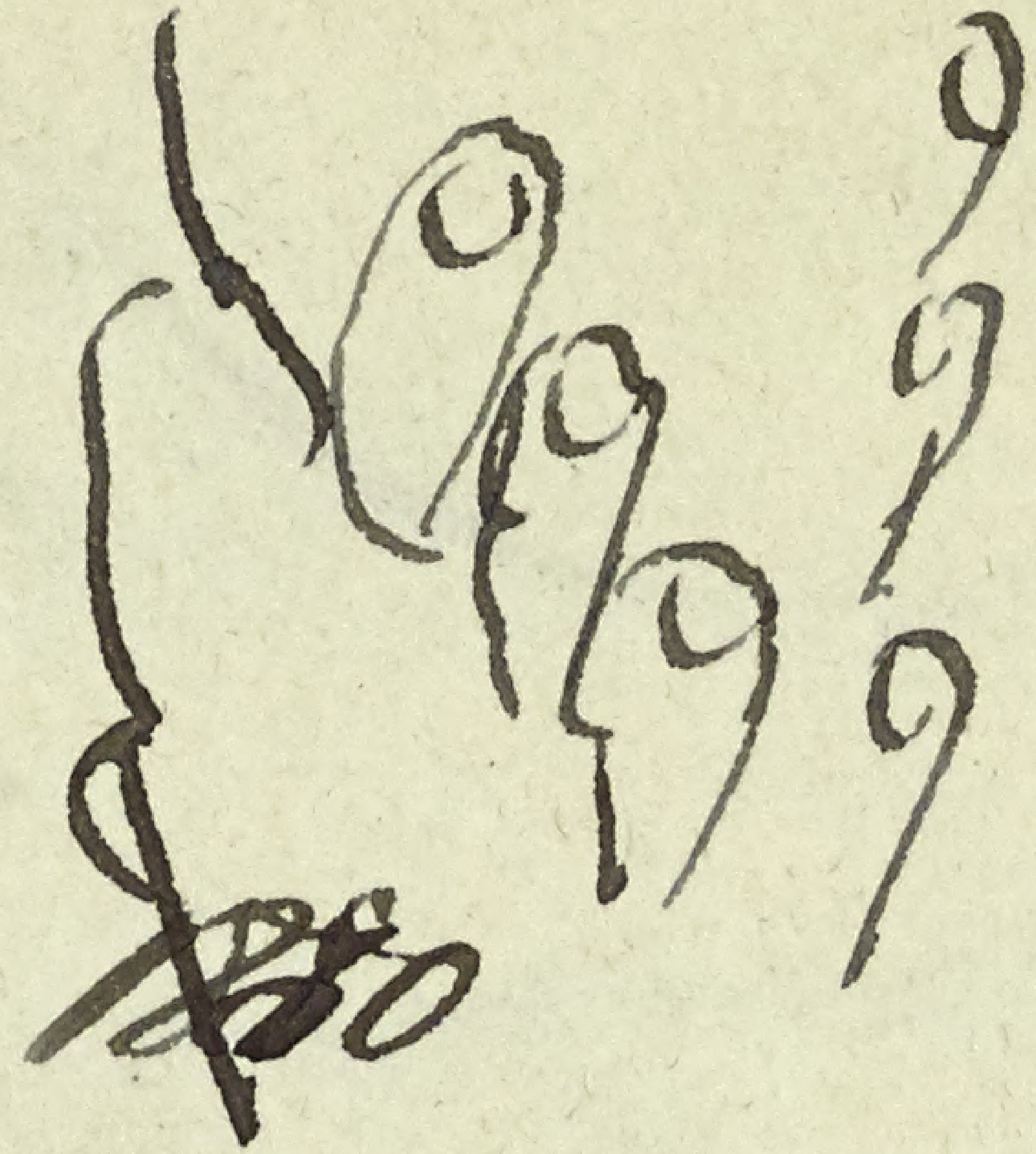
Cylindropuntia echinophloea

mesas, between Tucson and
Santa Rita Mountains, Sept 25–28 1880



tubercles 1/2 inch long

GE

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Allenton, Mo. Nov. 13-1880,

Dr. Engelmann,

My dear Sir:

near St Xavier's Mission

Opuntia (Cylindropuntia) Mesa, south of Tucson Sept. 25th 1880
6 feet high, very spiny, stem small and very slender leaves, fruit deeply umbilicate, tuberculate, seeds regular; stem 4 inches thick

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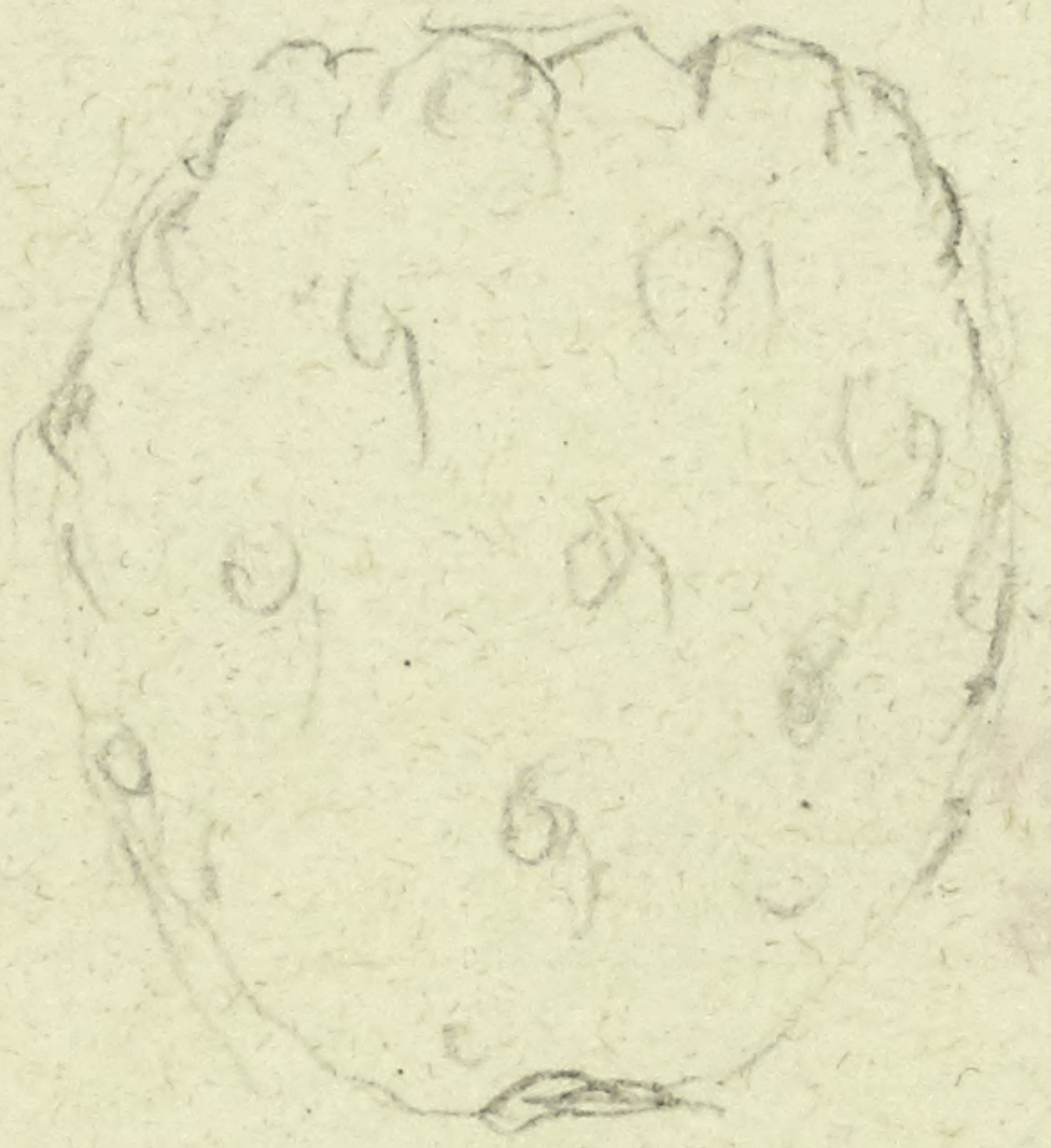
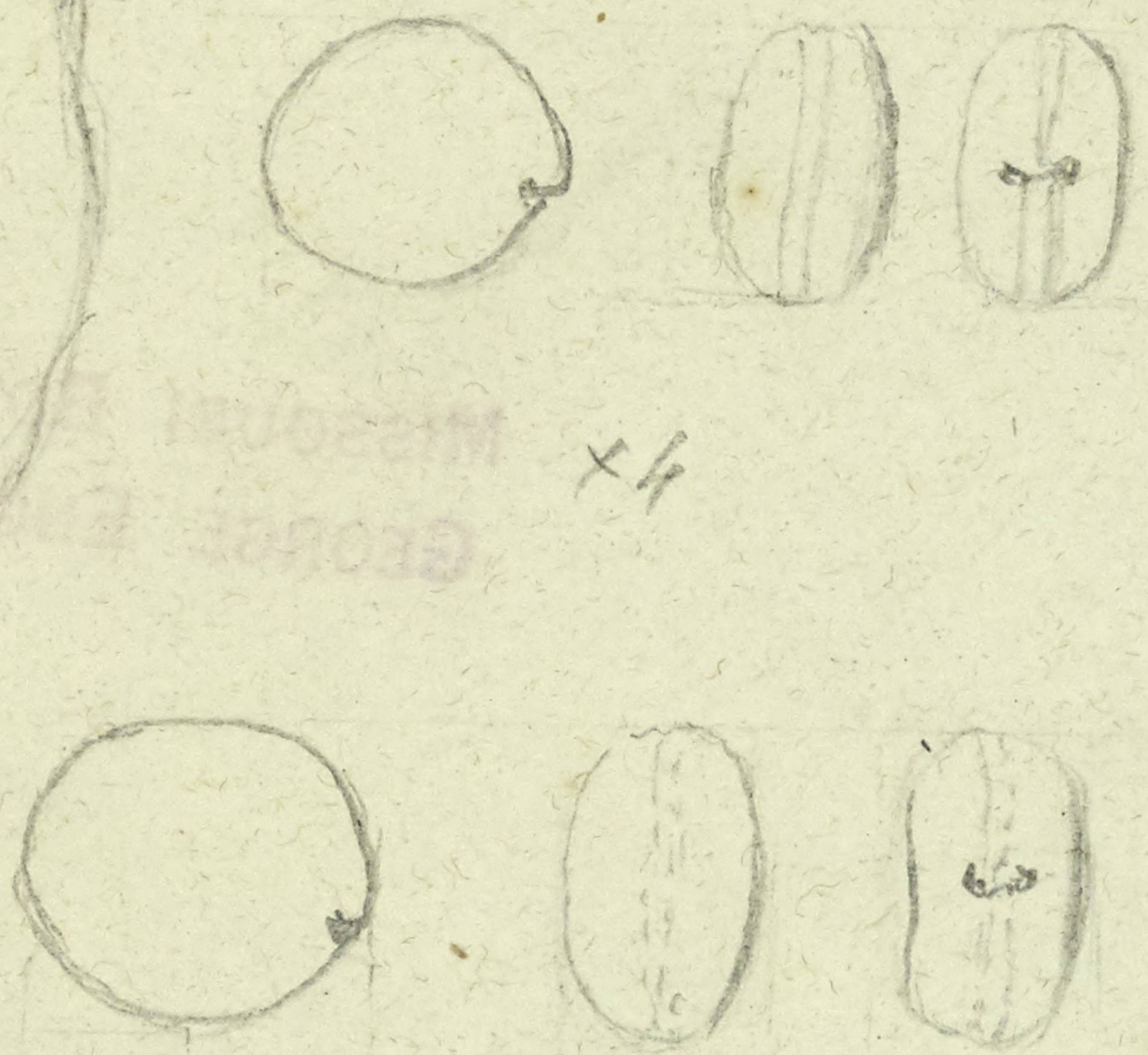
Opuntia March 28 1876

Dr. Palmer Arizona 88 (or 103) 1867


30 areolæ



2.5-29

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